



TEST REPORT

No. 2010TAR058

for

ZTE CORPORATION

GSM Quad_band digital mobile phone

Model Name: Vodafone 546

FCC ID: Q78-VDF546

with

Hardware Version: g7rC

Software Version: EFSPA-Z-DE-P160A61(SPA)V1.0.0B01

Issued Date: 2010-03-09



No. DAT-P-114/01-01

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of TMC Beijing.

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1. Test Laboratory

1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT
Address: No 52, Huayuan beilu, Haidian District, Beijing, P.R.China
Postal Code: 100191
Telephone: 00861062303288
Fax: 00861062304793

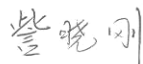
1.2. Testing Environment

Normal Temperature: 15-35℃
Extreme Temperature: -20/+55℃
Relative Humidity: 20-75%

1.3. Project data

Project Leader: Zi Xiaogang
Testing Start Date: 2010-02-02
Testing End Date: 2010-03-09

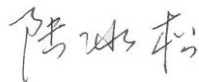
1.4. Signature



Zi Xiaogang
(Prepared this test report)



Sun Xiangqian
(Reviewed this test report)



Lu Bingsong
Deputy Director of the laboratory
(Approved this test report)

2. Client Information

2.1. Applicant Information

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City: Shenzhen
Postal Code: 518057
Country: China
Telephone: 0086 21 68895196
Fax: 0086 21 61460600

2.2. Manufacturer Information

Company Name: ZTE CORPORATION
Address /Post: ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
City: Shenzhen
Postal Code: 518057
Country: China
Telephone: 0086 21 68895196
Fax: 0086 21 61460600

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	GSM Quad_band digital mobile phone
Model Name	Vodafone 546
FCC ID	Q78-VDF546
Frequency Band	ISM 2400MHz~2483.5MHz
Type of Modulation	GFSK/ $\pi/4$ DQPSK/8DPSK
Number of Channels	79
Power Supply	3.7V DC by Battery

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
N08	357640030022208	g7rC	EFSPA-Z-DE-P160A61(SPA)V1.0.0B01

*EUT ID: is used to identify the test sample in the lab internally.

NOTE: The EUT is a variant model of Vodafone 545. Only the enclosure and keyboard had been changed. So only the RSE had been tested. The other result is coming from the Vodafone 545.

3.3. Internal Identification of AE used during the test

AE ID*	Description	Type	SN
AE1	Battery	Li3708T42P3h453756-NTC	/
AE2	Travel Adapter	STC-A22O50U8-C	/

*AE ID: is used to identify the test sample in the lab internally.

4. Reference Documents

4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

FCC Part15	FCC CFR 47, Part 15, Subpart C:	July 10, 2008 Edition
	15.205 Restricted bands of operation;	
	15.209 Radiated emission limits, general requirements;	
ANSI C63.4	15.247 Operation within the bands 902–928MHz, 2400–2483.5 MHz, and 5725–5850 MHz.	2009
	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	
FCC Public Notice DA 00-705	Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems	March 2000

5. LABORATORY ENVIRONMENT

Shielding Room1 (6.0 meters×3.0 meters×2.7 meters) did not exceed following limits along the conducted RF performance testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz

Control room did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. =30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

Fully-anechoic chamber1 (6.8 meters×3.08 meters×3.53 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz
------------------------------	--

Shielding Room2 (7.30 meters×4.00 meters×3.80 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz

6. SUMMARY OF TEST RESULTS

6.1. Summary of Test Results

Abbreviations used in this clause:

P Pass

F Fail

NA not applicable

NM not measured

SUMMARY OF MEASUREMENT RESULTS	Sub-clause	Verdict
Peak Output Power - Conducted	15.247 (b)(1)	P
Frequency Band Edges	15.247 (d)	P
Conducted Emission	15.247 (d)	P
Radiated Emission	15.247, 15.205, 15.209	P
Time of Occupancy (Dwell Time)	15.247 (a) (1)(iii)	P
20dB Bandwidth	15.247 (a)(1)	NA
Carrier Frequency Separation	15.247 (a)(1)	P
Number of hopping channels	15.247 (a)(b)(iii)	P
AC Powerline Conducted Emission	15.107, 15.207	P

Please refer to **ANNEX A** for detail.

The measurement is made according to Public notice DA 00-705 and ANSI C63.4.

6.2. Statements

TMC has evaluated the test cases requested by the applicant /manufacturer as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.2

7. Test Equipments Utilized

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Vector Signal Analyzer	FSU26	200030	Rohde & Schwarz	2010-06-18
2	Bluetooth Tester	CBT32	100649	Rohde & Schwarz	2011-02-03

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date
1	Test Receiver	ESI40	831564/002	Rohde & Schwarz	2011-02-11
2	BiLog Antenna	3142B	9908-1403	EMCO	2011-03-14
3	Dual-Ridge Waveguide Horn Antenna	3115	9906-5827	EMCO	2010-12-24
4	Universal Radio Communication Tester	CMU200	105948	Rohde & Schwarz	2010-08-14

Anechoic chamber

Fully anechoic chamber by Frankonia German.

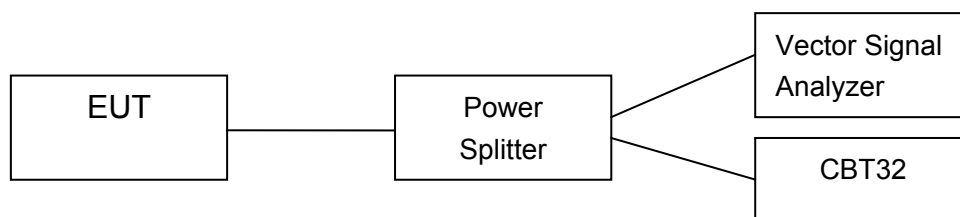
ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

A.1.1. Conducted Measurements

The measurement is made according to Public notice DA 00-705 and ANSI C63.4.

- 1). Connect the EUT to the test system correctly.
- 2). Set the EUT to the required work mode (Transmitter, receiver or transmitter & receiver).
- 3). Set the EUT to the required channel.
- 4). Set the EUT hopping mode (hopping or hopping off).
- 5). Set the spectrum analyzer to start measurement.
- 6). Record the values. Vector Signal Analyzer



A.1.2. Radiated Emission Measurements

In the case of radiated emission, the used settings are as follows,

Sweep frequency from 30 MHz to 1GHz, RBW = 100 kHz, VBW = 300 kHz;

Sweep frequency from 1 GHz to 26GHz, RBW = 1MHz, VBW = 1MHz;

A.2. Peak Output Power - Conducted

Measurement Limit:

Standard	Limit (dBm)
FCC Part 15.247(b)(1)	< 30

The measurement is made according to Public notice DA 00-705 and ANSI C63.4.

Measurement Results:

For GFSK

Channel	Ch 0 2402 MHz	Ch 39 2441 MHz	Ch 78 2480 MHz	Conclusion
Peak Conducted Output Power (dBm)	-1.71	-0.19	-0.79	P

For $\pi/4$ DQPSK

Channel	Ch 0 2402 MHz	Ch 39 2441 MHz	Ch 78 2480 MHz	Conclusion
Peak Conducted Output Power (dBm)	-1.67	-0.21	-0.78	P

For 8DPSK

Channel	Ch 0 2402 MHz	Ch 39 2441 MHz	Ch 78 2480 MHz	Conclusion
Peak Conducted Output Power (dBm)	-1.55	-0.13	-0.70	P

Conclusion: PASS

A.3. Frequency Band Edges - Conducted

Measurement Limit:

Standard	Limit (dBc)
FCC 47 CFR Part 15.247 (d)	> 20

The measurement is made according to Public notice DA 00-705 and ANSI C63.4.

Measurement Result:

For GFSK

Channel	Hopping	Band Edge Power (dBc)		Conclusion
0	Hopping OFF	Fig.1	-38.91	P
	Hopping ON	Fig.2	-38.43	P
78	Hopping OFF	Fig.3	-55.91	P
	Hopping ON	Fig.4	-55.31	P

For $\pi/4$ DQPSK

Channel	Hopping	Band Edge Power (dBc)		Conclusion
0	Hopping OFF	Fig.5	-45.98	P
	Hopping ON	Fig.6	-45.56	P
78	Hopping OFF	Fig.7	-58.02	P
	Hopping ON	Fig.8	-57.12	P

For 8DPSK

Channel	Hopping	Band Edge Power (dBc)		Conclusion
0	Hopping OFF	Fig.9	-45.98	P
	Hopping ON	Fig.10	-47.35	P
78	Hopping OFF	Fig.11	-56.44	P
	Hopping ON	Fig.12	-55.09	P

See annex B for test graphs.

Conclusion: PASS

A.4. Conducted Emission

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247 (d)	20dB below peak output power in 100 kHz bandwidth

The measurement is made according to Public notice DA 00-705 and ANSI C63.4

Measurement Results:
For GFSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	Center Frequency	Fig.13	P
	30 MHz ~ 1 GHz	Fig.14	P
	1 GHz ~ 26 GHz	Fig.15	P
Ch 39 2441 MHz	Center Frequency	Fig.16	P
	30 MHz ~ 1 GHz	Fig.17	P
	1 GHz ~ 26 GHz	Fig.18	P
Ch 78 2480 MHz	Center Frequency	Fig.19	P
	30 MHz ~ 1 GHz	Fig.20	P
	1 GHz ~ 26 GHz	Fig.21	P

For $\pi/4$ DQPSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	Center Frequency	Fig.22	P
	30 MHz ~ 1 GHz	Fig.23	P
	1 GHz ~ 26 GHz	Fig.24	P
Ch 39 2441 MHz	Center Frequency	Fig.25	P
	30 MHz ~ 1 GHz	Fig.26	P
	1 GHz ~ 26 GHz	Fig.27	P
Ch 78 2480 MHz	Center Frequency	Fig.28	P
	30 MHz ~ 1 GHz	Fig.29	P
	1 GHz ~ 26 GHz	Fig.30	P

For 8DPSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	Center Frequency	Fig.31	P
	30 MHz ~ 1 GHz	Fig.32	P
	1 GHz ~ 26 GHz	Fig.33	P
Ch 39 2441 MHz	Center Frequency	Fig.34	P
	30 MHz ~ 1 GHz	Fig.35	P
	1 GHz ~ 26 GHz	Fig.36	P
Ch 78 2480 MHz	Center Frequency	Fig.37	P
	30 MHz ~ 1 GHz	Fig.38	P
	1 GHz ~ 26 GHz	Fig.39	P

See annex B for test graphs.

Conclusion: PASS

A.5. Radiated Emission

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

The measurement is made according to Public notice DA 00-705 and ANSI C63.4

Limit in restricted band:

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Condition

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100KHz/300KHz	5
1000-4000	1MHz/1MHz	15
4000-18000	1MHz/1MHz	40
18000-26500	1MHz/1MHz	20

Measurement Results:

A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable los.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{\text{Rpl}}$$

For GFSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	30 MHz ~ 1 GHz	Fig.40	P
	1 GHz ~ 4 GHz	Fig.41	P
	4 GHz ~ 18 GHz	Fig.42	P
Ch 39 2441 MHz	30 MHz ~ 1 GHz	Fig.43	P
	1 GHz ~ 4 GHz	Fig.44	P
	4 GHz ~ 18 GHz	Fig.45	P
Ch 78 2480 MHz	30 MHz ~ 1 GHz	Fig.46	P
	1 GHz ~ 4 GHz	Fig.47	P
	4 GHz ~ 18 GHz	Fig.48	P
Power	2.45GHz~2.5GHz	Fig.49	P
For all channels	18 GHz ~ 26 GHz	Fig.50	P

Ch 0

Frequency(MHz)	Result(dBuV/m)	A _{Rpl} (dB)	P _{Mea} (dBuV/m)	Polarity
2442.886	52.55	8.6	43.95	VERTICAL
3553.106	52.35	14.3	38.05	VERTICAL
3791.583	52.15	14.1	38.05	VERTICAL
3877.756	52.09	14.4	37.69	VERTICAL
3961.924	52.05	14.4	37.65	VERTICAL
3519.038	51.99	14.4	37.59	VERTICAL

Ch 39

Frequency(MHz)	Result(dBuV/m)	A _{Rpl} (dB)	P _{Mea} (dBuV/m)	Polarity
2446.894	53.12	8.6	44.52	VERTICAL
3476.954	52.79	12.2	40.59	VERTICAL
3709.419	52.36	14.3	38.06	VERTICAL
3741.483	52.35	14.4	37.95	VERTICAL
3743.487	52.21	14.4	37.81	VERTICAL
3515.03	52.08	14.4	37.68	VERTICAL

Ch 78

Frequency(MHz)	Result(dBuV/m)	A _{Rpl} (dB)	P _{Mea} (dBuV/m)	Polarity
2442.886	52.55	8.6	43.95	VERTICAL
3553.106	52.35	14.3	38.05	VERTICAL
3791.583	52.15	14.1	38.05	VERTICAL
3877.756	52.09	14.4	37.69	VERTICAL
3961.924	52.05	14.4	37.65	VERTICAL
3519.038	51.99	14.4	37.59	VERTICAL

For $\pi/4$ DQPSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	30 MHz ~ 1 GHz	Fig.51	P
	1 GHz ~ 4 GHz	Fig.52	P
	4 GHz ~ 18 GHz	Fig.53	P
Ch 39 2441 MHz	30 MHz ~ 1 GHz	Fig.54	P
	1 GHz ~ 4 GHz	Fig.55	P
	4 GHz ~ 18 GHz	Fig.56	P
Ch 78 2480 MHz	30 MHz ~ 1 GHz	Fig.57	P
	1 GHz ~ 4 GHz	Fig.58	P
	4 GHz ~ 18 GHz	Fig.59	P
Power	2.45GHz~2.5GHz	Fig.60	P
For all channels	18 GHz ~ 26 GHz	Fig.61	P

Ch 0

Frequency(MHz)	Result(dBuV/m)	A_{Rpl} (dB)	P_{Mea} (dBuV/m)	Polarity
2398.798	52.93	8.7	44.23	VERTICAL
3981.964	52.15	14.6	37.55	VERTICAL
2478.958	52.02	9.1	42.92	VERTICAL
3965.932	51.98	14.4	37.58	VERTICAL
3659.319	51.96	14.1	37.86	VERTICAL
3885.772	51.92	14.4	37.52	VERTICAL

Ch 39

Frequency(MHz)	Result(dBuV/m)	A_{Rpl} (dB)	P_{Mea} (dBuV/m)	Polarity
3729.459	53.51	14.4	39.11	VERTICAL
3683.367	52.36	14.2	38.16	VERTICAL
3545.09	52.19	14.3	37.89	VERTICAL
3507.014	52.09	14.5	37.59	VERTICAL
3871.743	51.96	14.4	37.56	VERTICAL
3989.98	51.96	14.6	37.36	VERTICAL

Ch 78

Frequency(MHz)	Result(dBuV/m)	A_{Rpl} (dB)	P_{Mea} (dBuV/m)	Polarity
3673.347	52.72	14.2	38.52	VERTICAL
3492.986	52.6	12.3	40.3	VERTICAL
3494.99	52.54	12.3	40.24	VERTICAL
3849.699	52.34	14	38.34	VERTICAL
3729.459	52.18	14.4	37.78	VERTICAL
3703.407	52.12	14.3	37.82	VERTICAL

For 8DPSK

Channel	Frequency Range	Test Results	Conclusion
Ch 0 2402 MHz	30 MHz ~ 1 GHz	Fig.62	P
	1 GHz ~ 4 GHz	Fig.63	P
	4 GHz ~ 18 GHz	Fig.64	P
Ch 39 2441 MHz	30 MHz ~ 1 GHz	Fig.65	P
	1 GHz ~ 4 GHz	Fig.66	P
	4 GHz ~ 18 GHz	Fig.67	P
Ch 78 2480 MHz	30 MHz ~ 1 GHz	Fig.68	P
	1 GHz ~ 4 GHz	Fig.69	P
	4 GHz ~ 18 GHz	Fig.70	P
Power	2.45GHz~2.5GHz	Fig.71	P
For all channels	18 GHz ~ 26 GHz	Fig.72	P

Ch 0

Frequency(MHz)	Result(dBuV/m)	A _{Rpl} (dB)	P _{Mea} (dBuV/m)	Polarity
3615.23	53.28	14	39.28	VERTICAL
3547.094	52.62	14.3	38.32	VERTICAL
2478.958	52.47	9.1	43.37	VERTICAL
3488.978	52.26	12.2	40.06	VERTICAL
3871.743	52.25	14.4	37.85	VERTICAL
3519.038	52.23	14.4	37.83	VERTICAL

Ch 39

Frequency(MHz)	Result(dBuV/m)	A _{Rpl} (dB)	P _{Mea} (dBuV/m)	Polarity
3965.932	52.3	14.4	37.9	VERTICAL
3701.403	52.18	14.3	37.88	VERTICAL
3663.327	52.13	14.1	38.03	VERTICAL
3490.982	52.08	12.3	39.78	VERTICAL
3517.034	52.05	14.4	37.65	VERTICAL
3501.002	51.82	14.5	37.32	VERTICAL

Ch 78

Frequency(MHz)	Result(dBuV/m)	A _{Rpl} (dB)	P _{Mea} (dBuV/m)	Polarity
3957.916	52.19	14.2	37.99	VERTICAL
3709.419	52	14.3	37.7	VERTICAL
3901.804	51.96	14.5	37.46	VERTICAL
3545.09	51.94	14.3	37.64	VERTICAL
3895.792	51.8	14.4	37.4	VERTICAL
3899.8	51.78	14.4	37.38	VERTICAL

See annex B for test graphs.

Conclusion: PASS

A.6. Time of Occupancy (Dwell Time)

Measurement Limit:

Standard	Limit (ms)
FCC 47 CFR Part 15.247(a) (1)(iii)	< 400

The measurement is made according to Public notice DA 00-705 and ANSI C63.4

Measurement Result:

For GFSK

Channel	Packet	Dwell Time (ms)		Conclusion
39	DH1	Fig.73	113.85	P
		Fig.74		
	DH3	Fig.75	179.38	P
		Fig.76		
	DH5	Fig.77	228.53	P
		Fig.78		

For $\pi/4$ DQPSK

Channel	Packet	Dwell Time (ms)		Conclusion
39	DH1	Fig.79	113.22	P
		Fig.80		
	DH3	Fig.81	190.04	P
		Fig.82		
	DH5	Fig.83	196.65	P
		Fig.84		

For 8DPSK

Channel	Packet	Dwell Time (ms)		Conclusion
39	DH1	Fig.85	117.40	P
		Fig.86		
	DH3	Fig.87	176.03	P
		Fig.88		
	DH5	Fig.89	208.39	P
		Fig.90		

See annex B for test graphs.

Conclusion: PASS

A.7. 20dB Bandwidth

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a)(1)	NA *

The measurement is made according to Public notice DA 00-705 and ANSI C63.4

* Comment: This test case is not required according to the latest FCC 47 CFR Part 15.247. But the test results are necessary for “carrier frequency separation” test case, in Annex A.8.

Measurement Results:

For GFSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.91	762.82	NA
39	Fig.92	766.02	NA
78	Fig.93	759.62	NA

For $\pi/4$ DQPSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.94	1230.77	NA
39	Fig.95	1217.95	NA
78	Fig.96	1227.56	NA

For 8DPSK

Channel	20dB Bandwidth (kHz)		Conclusion
0	Fig.97	1217.95	NA
39	Fig.98	1211.54	NA
78	Fig.99	1266.02	NA

See annex B for test graphs.

Conclusion: NA

A.8. Carrier Frequency Separation

Measurement Limit:

Standard	Limit(kHz)
FCC 47 CFR Part 15.247(a)(1)	over 25 kHz or $(2/3) * 20\text{dB bandwidth}$

The measurement is made according to Public notice DA 00-705 and ANSI C63.4

* Comment: This limit should be over 25 kHz or $(2/3) * 20\text{dB bandwidth}$, whichever is greater.

Measurement Result:

For GFSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.100	990.38	P

For $\pi/4$ DQPSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.101	975.96	P

For 8DPSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.102	966.35	P

See annex B for test graphs.

Conclusion: PASS

A.9. Number of Hopping Channels

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a) (1)(iii)	At least 15 non-overlapping channels

The measurement is made according to Public notice DA 00-705 and ANSI C63.4

Measurement Result:
For GFSK

Channel	Number of hopping channels		Conclusion
0~39	Fig.103	79	P
40~78	Fig.104		

For $\pi/4$ DQPSK

Channel	Number of hopping channels		Conclusion
0~39	Fig.105	79	P
40~78	Fig.106		

For 8DPSK

Channel	Number of hopping channels		Conclusion
0~39	Fig.107	79	P
40~78	Fig.108		

See annex B for test graphs.

Conclusion: **PASS**

A.10. AC Powerline Conducted Emission
Test Condition

Voltage (V)	Frequency (Hz)
110	60

Measurement Result and limit:

Bluetooth (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB μ V)	Result (dB μ V)	Conclusion
		With Charger	
0.15 to 0.5	66 to 56	Fig.109	P
0.5 to 5	56		
5 to 30	60		

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Bluetooth (Average Limit)

Frequency range (MHz)	Average Limit (dB μ V)	Result (dB μ V)	Conclusion
		With Charger 1	
0.15 to 0.5	56 to 46	Fig.109	P
0.5 to 5	46		
5 to 30	50		

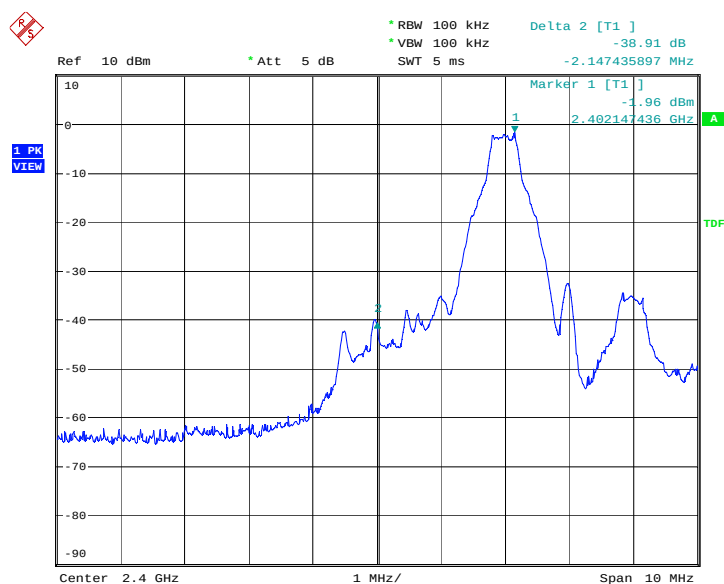
NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

The measurement is made according to Public notice DA 00-705 and ANSI C63.4

See annex B for test graphs.

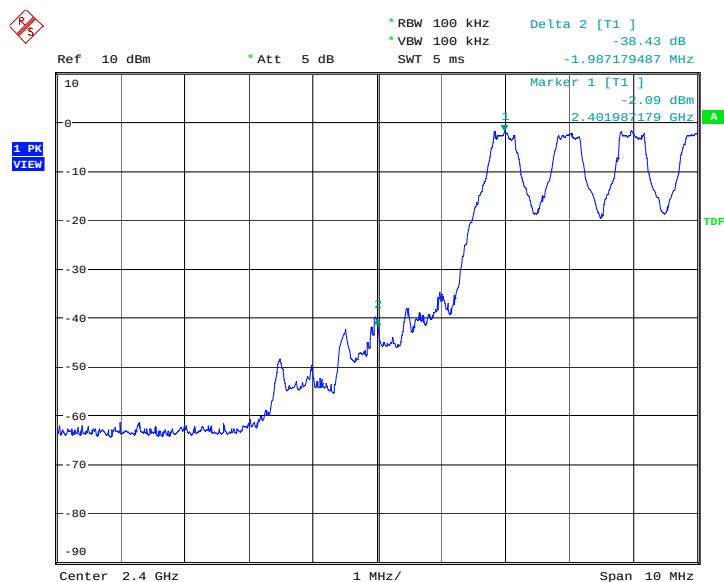
Conclusion: **PASS**

ANNEX B: TEST FIGURE LIST



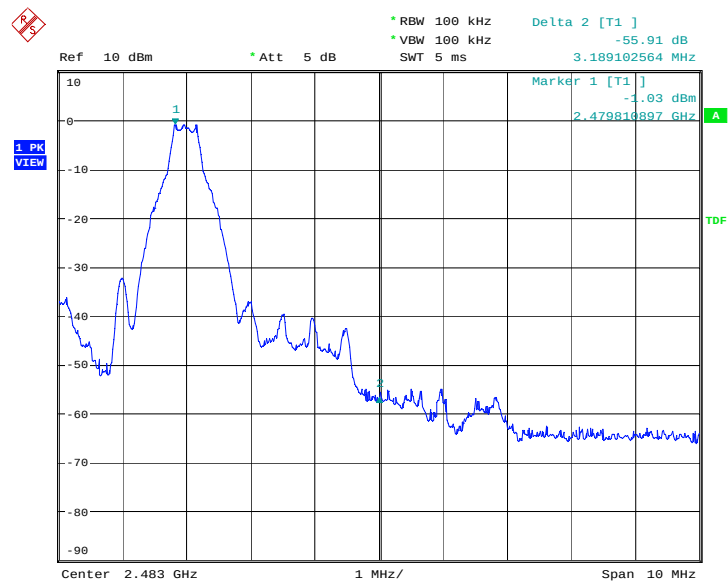
Date: 22.OCT.2009 01:53:45

Fig. 1 Frequency Band Edges: GFSK, Channel 0, Hopping Off



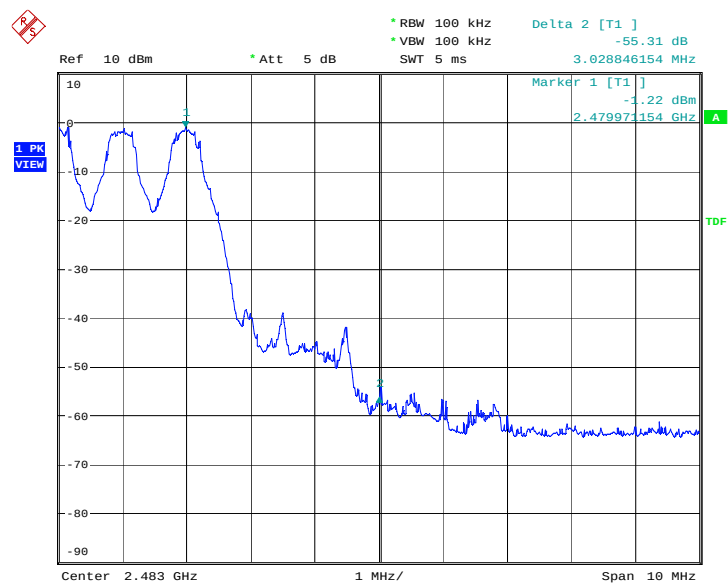
Date: 22.OCT.2009 01:59:05

Fig. 2 Frequency Band Edges: GFSK, Channel 0, Hopping On



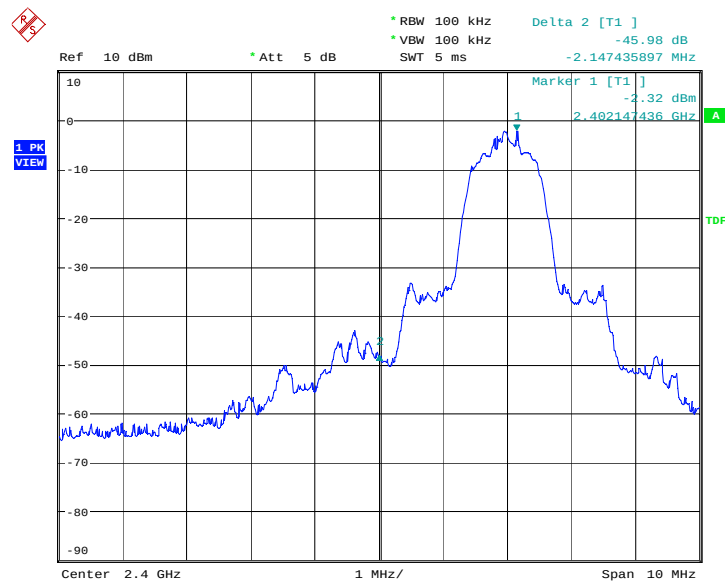
Date: 22.OCT.2009 01:54:02

Fig. 3 Frequency Band Edges: GFSK, Channel 78, Hopping Off



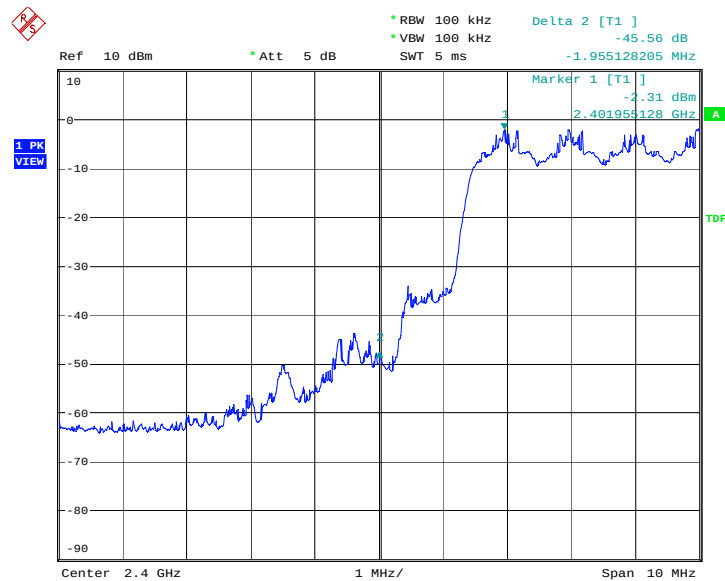
Date: 22.OCT.2009 02:04:07

Fig. 4 Frequency Band Edges: GFSK, Channel 78, Hopping On



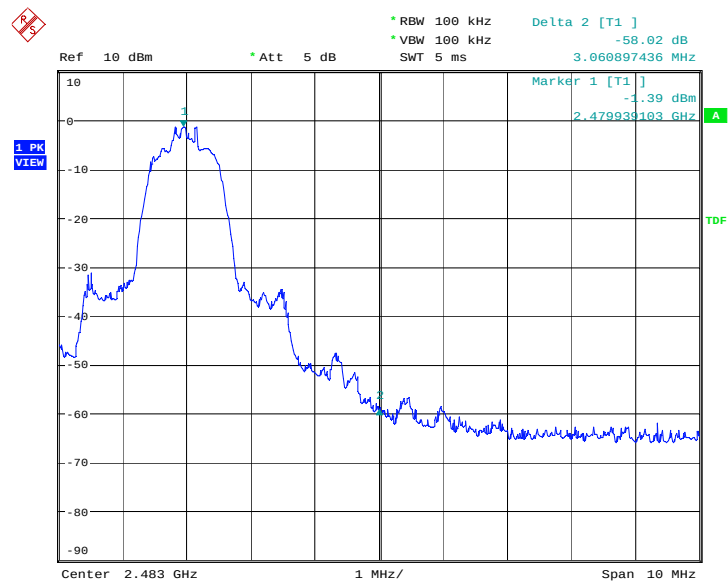
Date: 22.OCT.2009 02:29:21

Fig. 5 Frequency Band Edges: $\pi/4$ DQPSK, Channel 0, Hopping Off



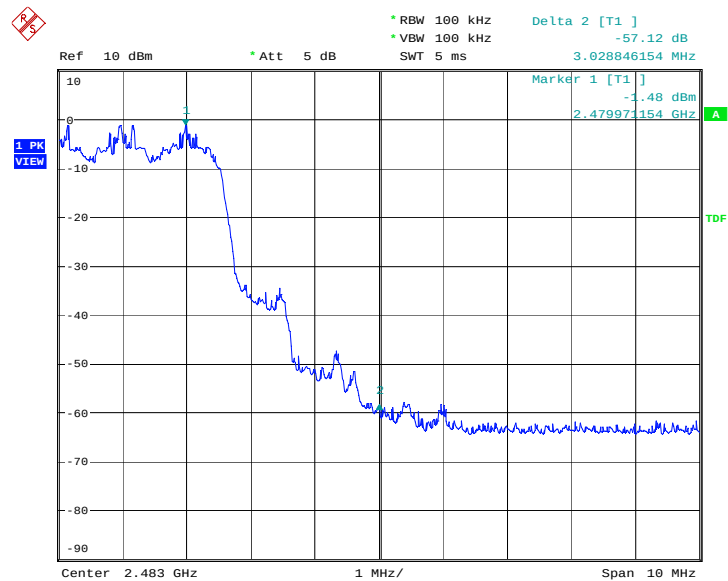
Date: 22.OCT.2009 02:34:41

Fig. 6 Frequency Band Edges: $\pi/4$ DQPSK, Channel 0, Hopping On



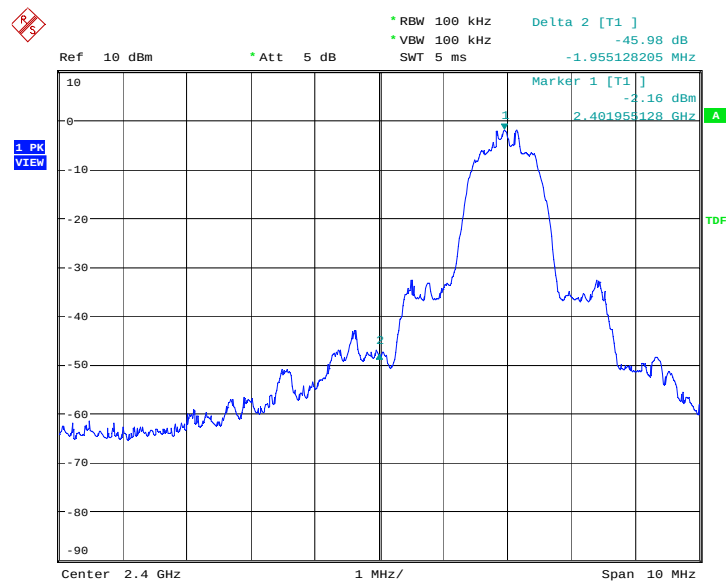
Date: 22.OCT.2009 02:29:38

Fig. 7 Frequency Band Edges: $\pi/4$ DQPSK, Channel 78, Hopping Off



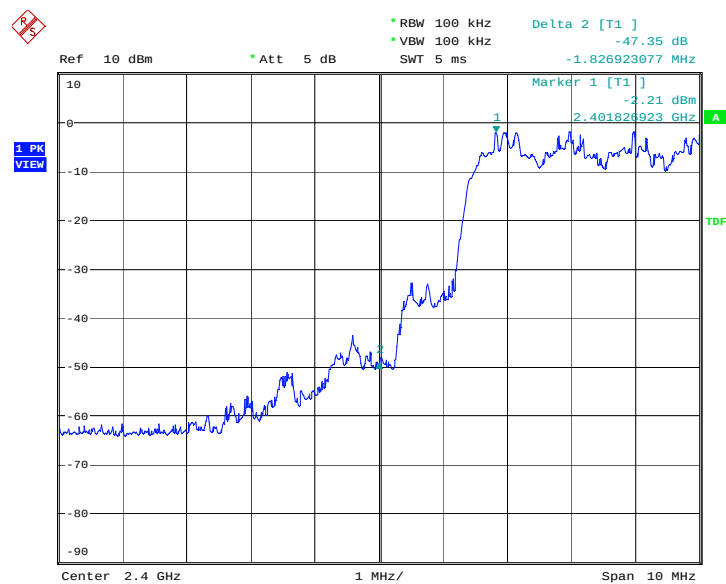
Date: 22.OCT.2009 02:39:43

Fig. 8 Frequency Band Edges: $\pi/4$ DQPSK, Channel 78, Hopping On



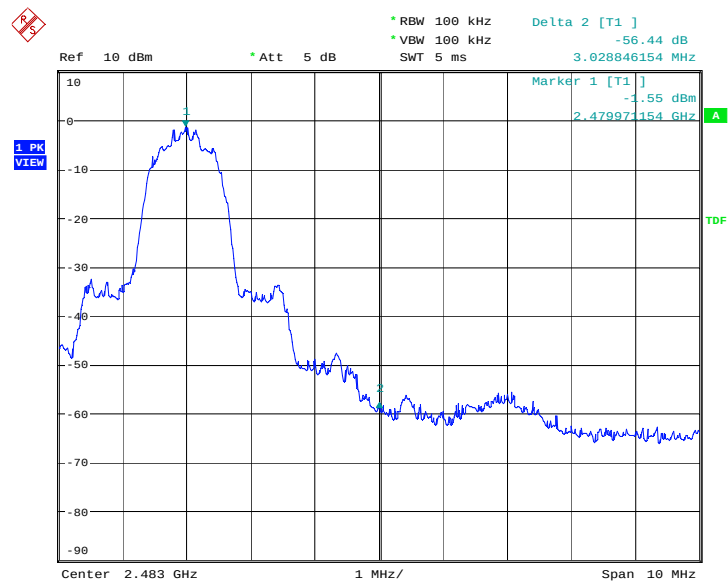
Date: 22.OCT.2009 03:08:09

Fig. 9 Frequency Band Edges: 8DPSK, Channel 0, Hopping Off



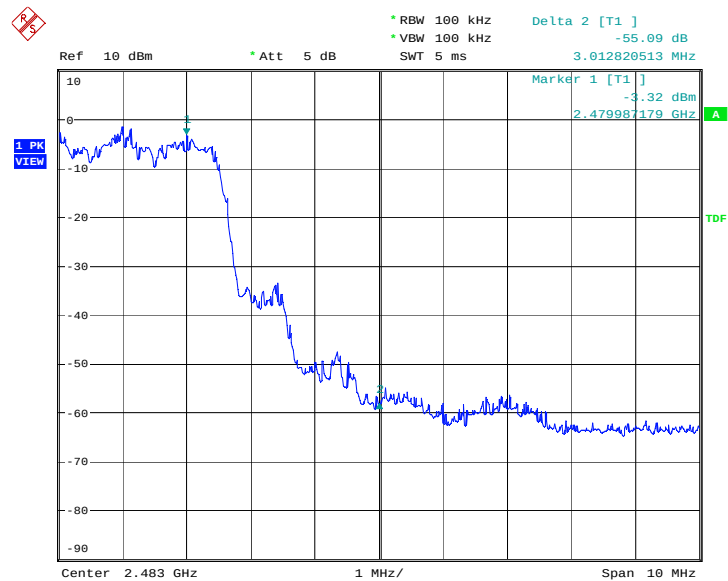
Date: 22.OCT.2009 03:13:29

Fig. 10 Frequency Band Edges: 8DPSK, Channel 0, Hopping On



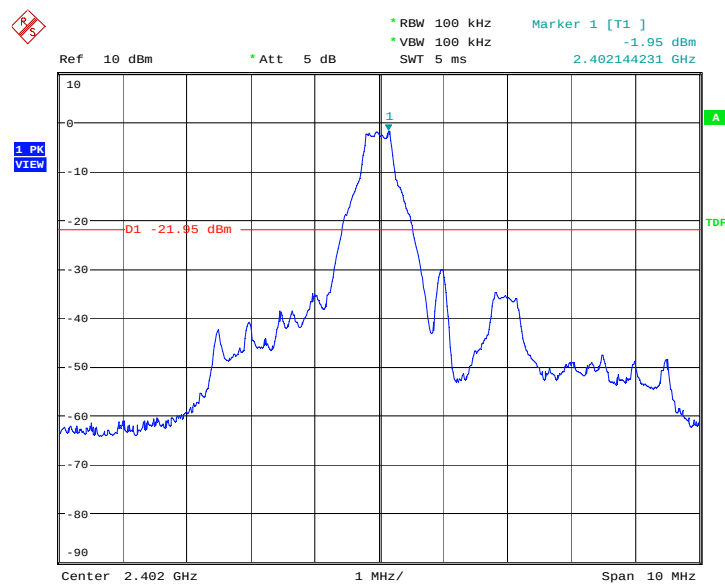
Date: 22.OCT.2009 03:08:26

Fig. 11 Frequency Band Edges: 8DPSK, Channel 78, Hopping Off



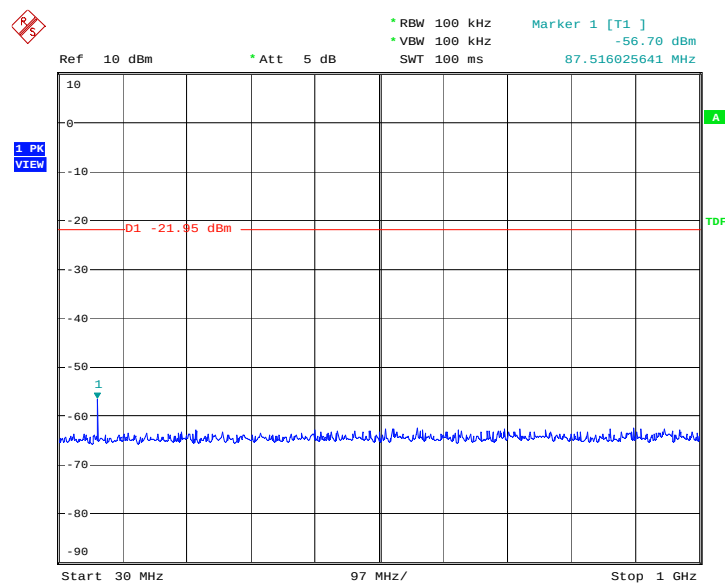
Date: 22.OCT.2009 03:18:31

Fig. 12 Frequency Band Edges: 8DPSK, Channel 78, Hopping On



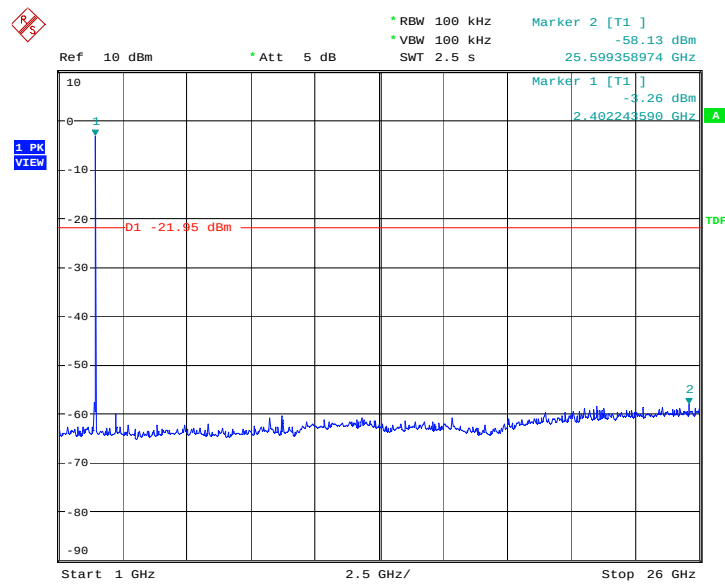
Date: 22.OCT.2009 02:04:25

Fig. 13 Conducted spurious emission: GFSK, Channel 0,2402MHz



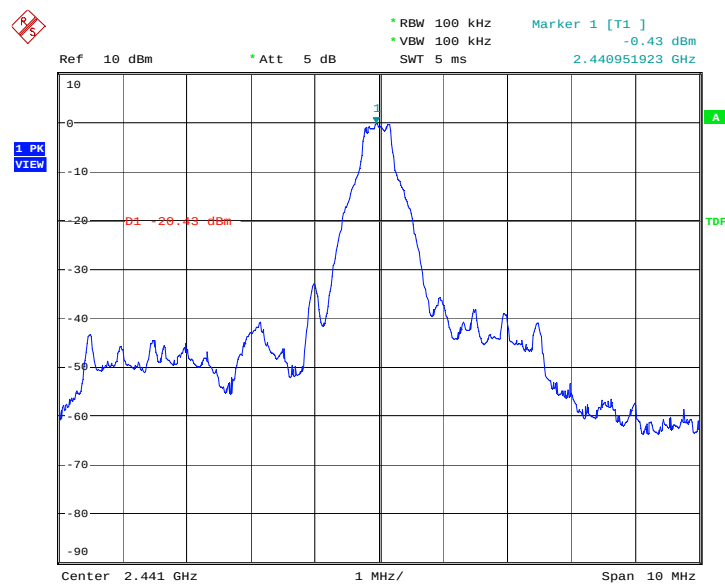
Date: 22.OCT.2009 02:04:42

Fig. 14 Conducted spurious emission: GFSK, Channel 0, 30MHz - 1GHz



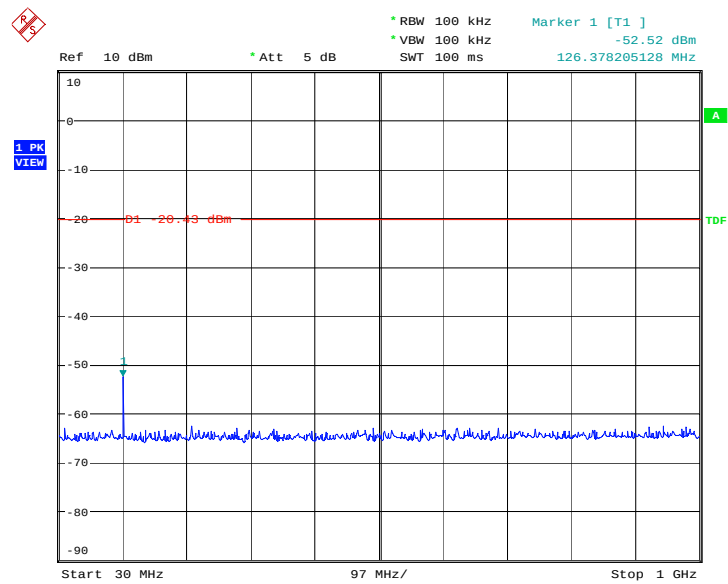
Date: 22.OCT.2009 02:05:13

Fig. 15 Conducted spurious emission: GFSK, Channel 0,1GHz - 26GHz



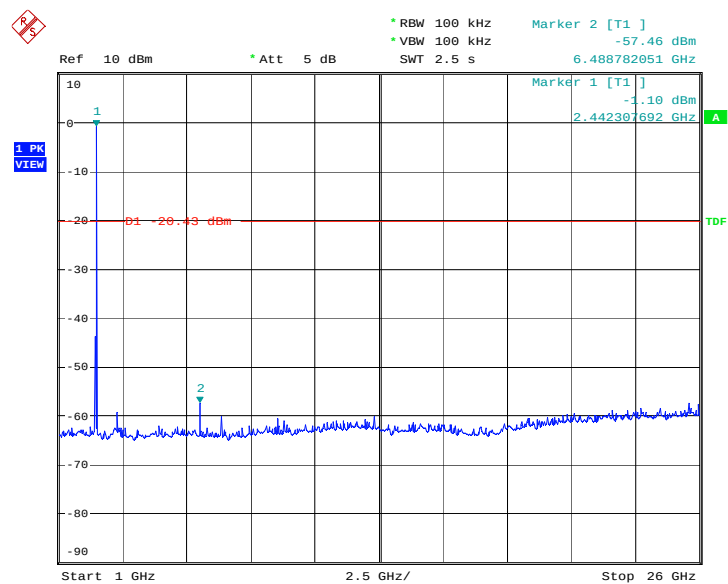
Date: 22.OCT.2009 02:05:30

Fig. 16 Conducted spurious emission: GFSK, Channel 39, 2441MHz



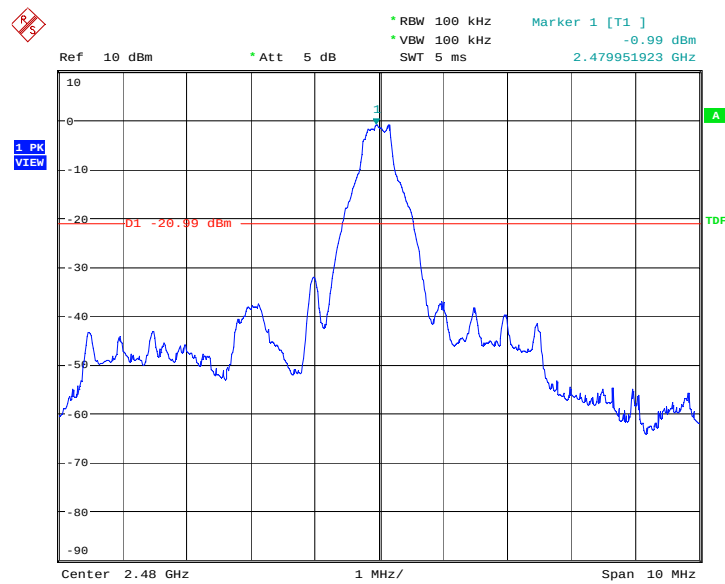
Date: 22.OCT.2009 02:05:46

Fig. 17 Conducted spurious emission: GFSK, Channel 39, 30MHz - 1GHz



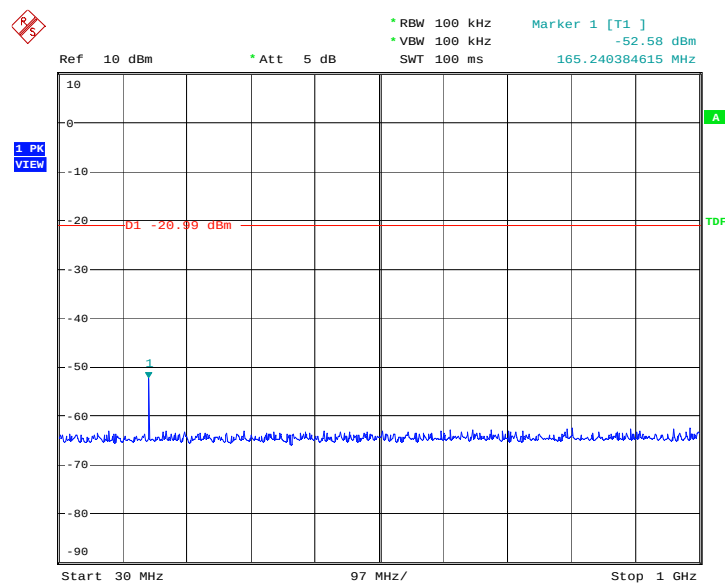
Date: 22.OCT.2009 02:06:18

Fig. 18 Conducted spurious emission: GFSK, Channel 39, 1GHz – 26GHz



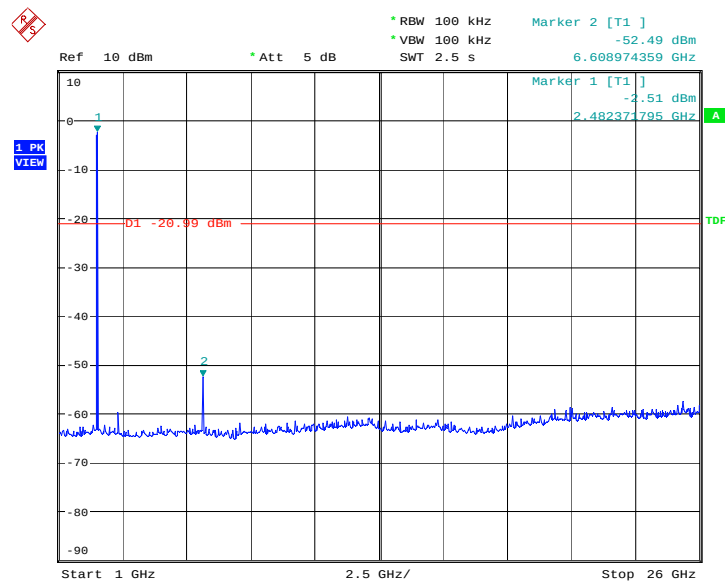
Date: 22.OCT.2009 02:06:34

Fig. 19 Conducted spurious emission: GFSK, Channel 78, 2480MHz



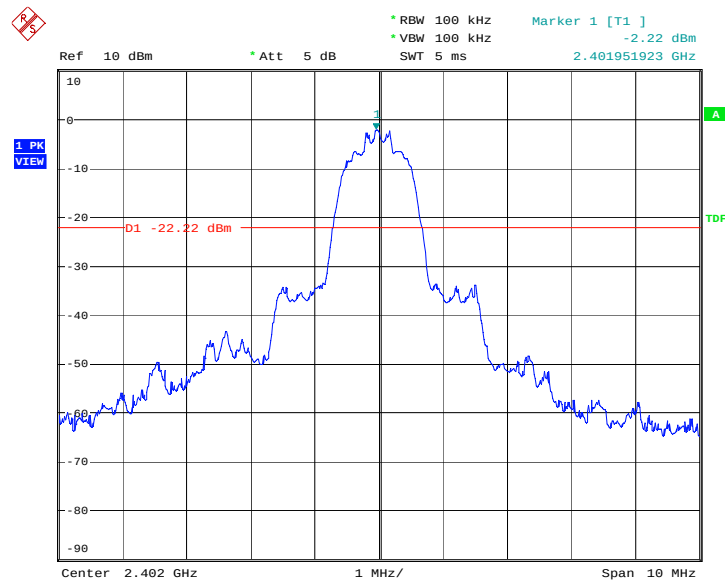
Date: 22.OCT.2009 02:06:51

Fig. 20 Conducted spurious emission: GFSK, Channel 78, 30MHz - 1GHz



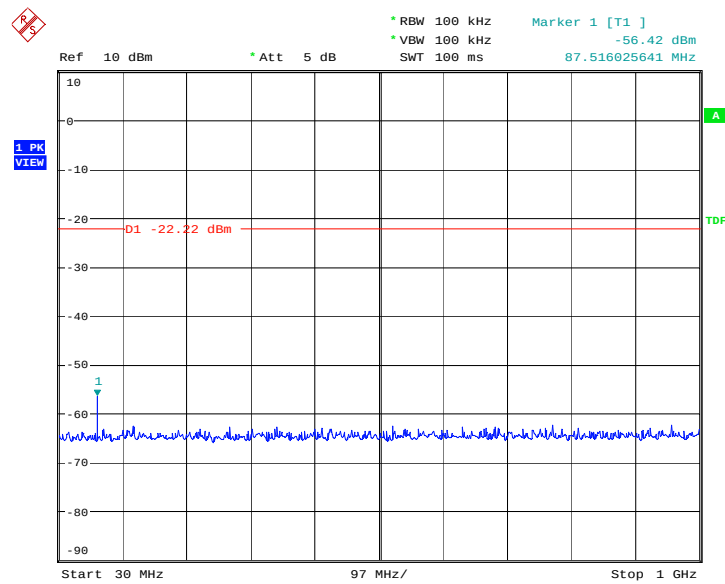
Date: 22.OCT.2009 02:07:22

Fig. 21 Conducted spurious emission: GFSK, Channel 78, 1GHz - 26GHz



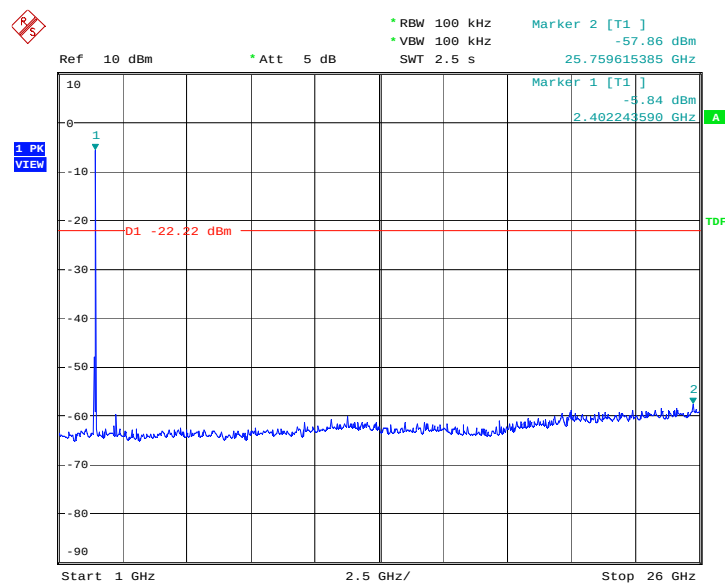
Date: 22.OCT.2009 02:40:01

Fig. 22 Conducted spurious emission: $\pi/4$ DQPSK, Channel 0, 2402MHz



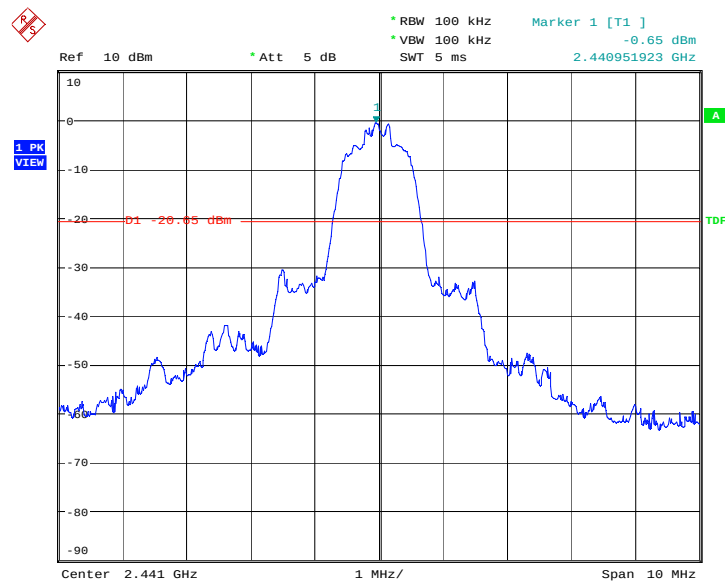
Date: 22.OCT.2009 02:40:18

Fig. 23 Conducted spurious emission: $\pi/4$ DQPSK, Channel 0, 30MHz - 1GHz



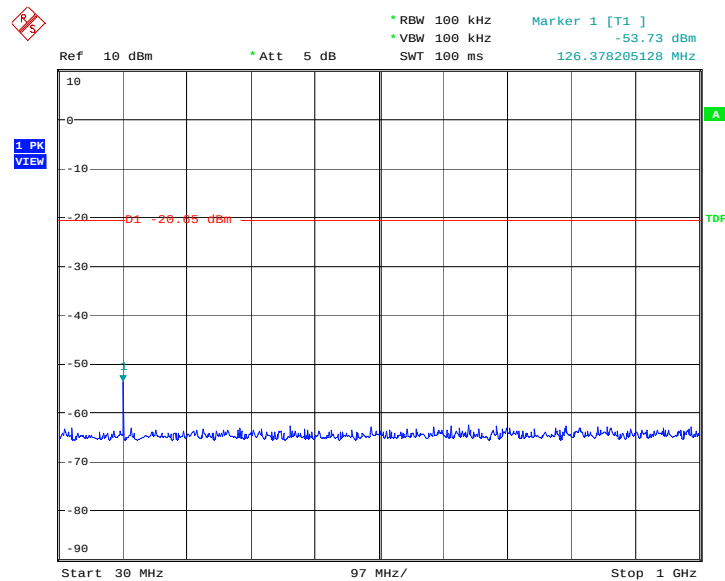
Date: 22.OCT.2009 02:40:49

Fig. 24 Conducted spurious emission: $\pi/4$ DQPSK, Channel 0, 1GHz - 26GHz



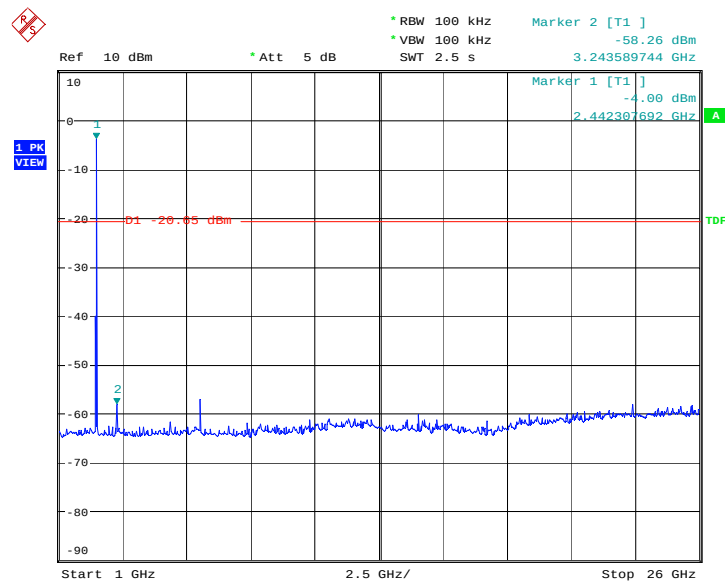
Date: 22.OCT.2009 02:41:06

Fig. 25 Conducted spurious emission: $\pi/4$ DQPSK, Channel 39, 2441MHz



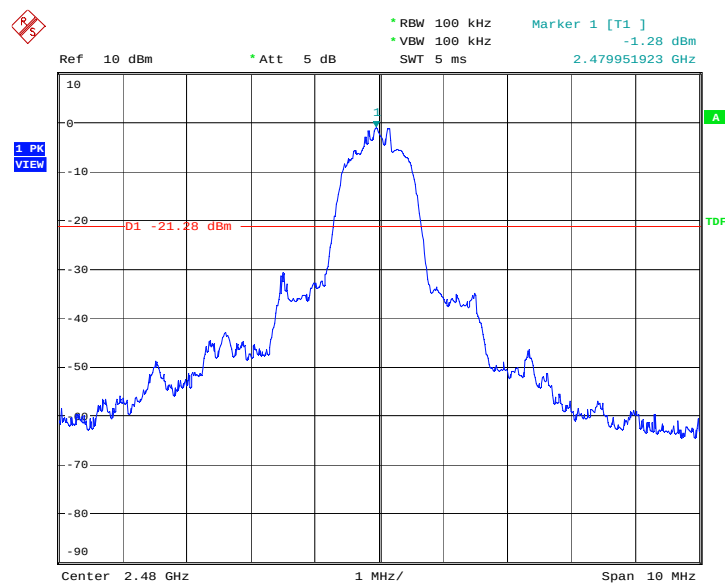
Date: 22.OCT.2009 02:41:22

Fig. 26 Conducted spurious emission: $\pi/4$ DQPSK, Channel 39, 30MHz - 1GHz



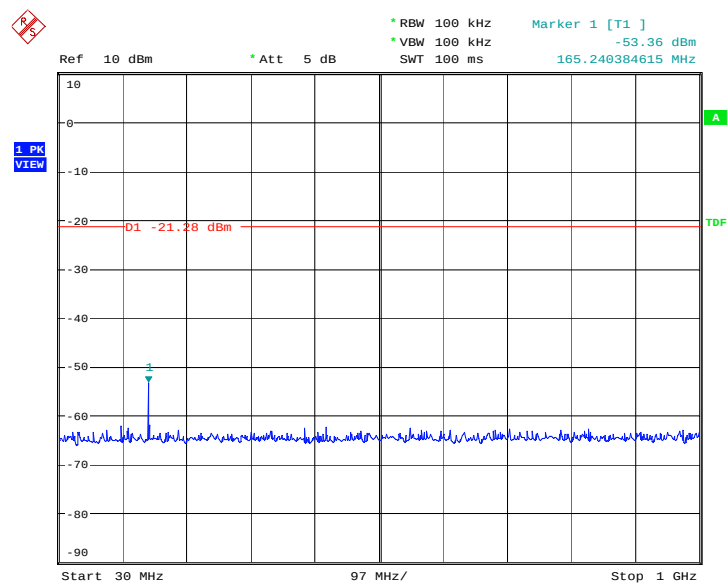
Date: 22.OCT.2009 02:41:54

Fig. 27 Conducted spurious emission: $\pi/4$ DQPSK, Channel 39, 1GHz – 26GHz



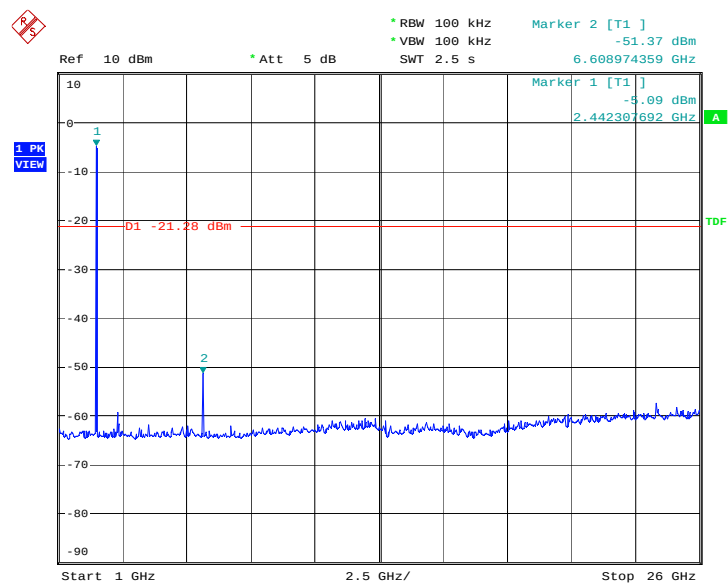
Date: 22.OCT.2009 02:42:10

Fig. 28 Conducted spurious emission: $\pi/4$ DQPSK, Channel 78, 2480MHz



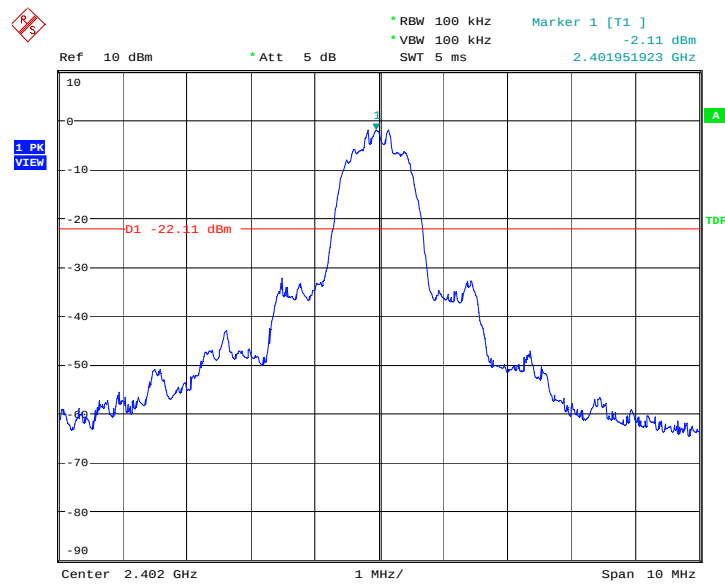
Date: 22.OCT.2009 02:42:27

Fig. 29 Conducted spurious emission: $\pi/4$ DQPSK, Channel 78, 30MHz - 1GHz



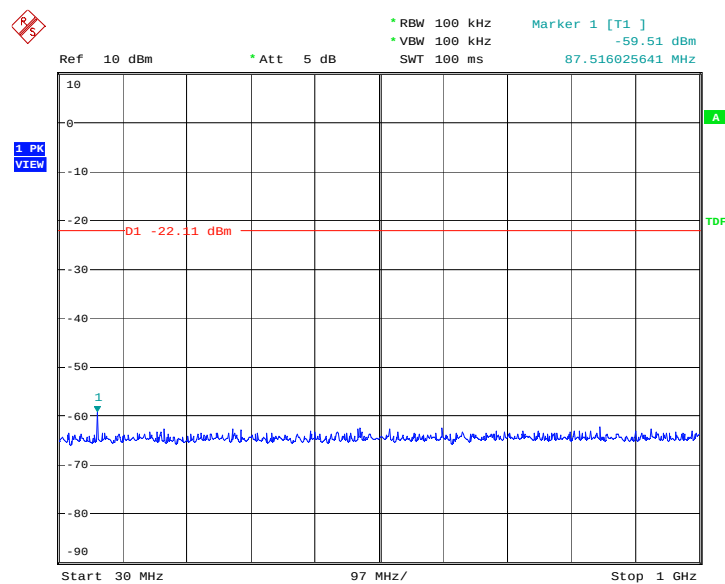
Date: 22.OCT.2009 02:42:58

Fig. 30 Conducted spurious emission: $\pi/4$ DQPSK, Channel 78, 1GHz - 26GHz



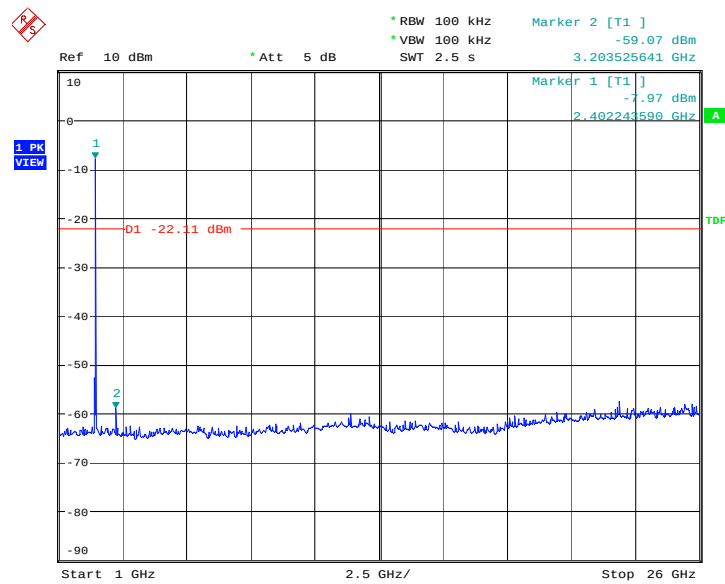
Date: 22.OCT.2009 03:18:49

Fig. 31 Conducted spurious emission: 8DPSK, Channel 0,2402MHz



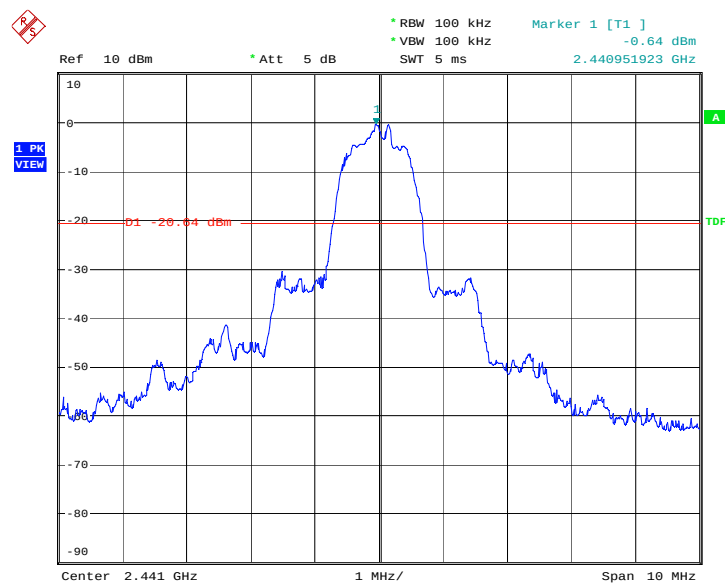
Date: 22.OCT.2009 03:19:06

Fig. 32 Conducted spurious emission: 8DPSK, Channel 0, 30MHz - 1GHz



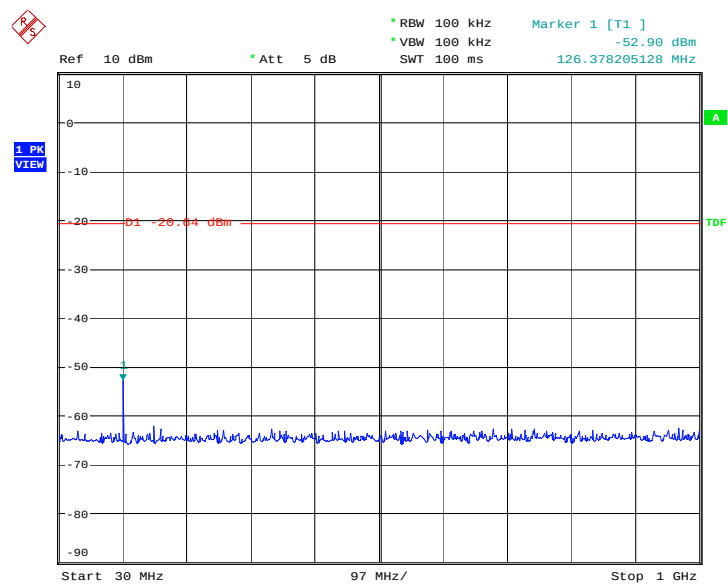
Date: 22.OCT.2009 03:19:37

Fig. 33 Conducted spurious emission: 8DPSK, Channel 0,1GHz - 26GHz



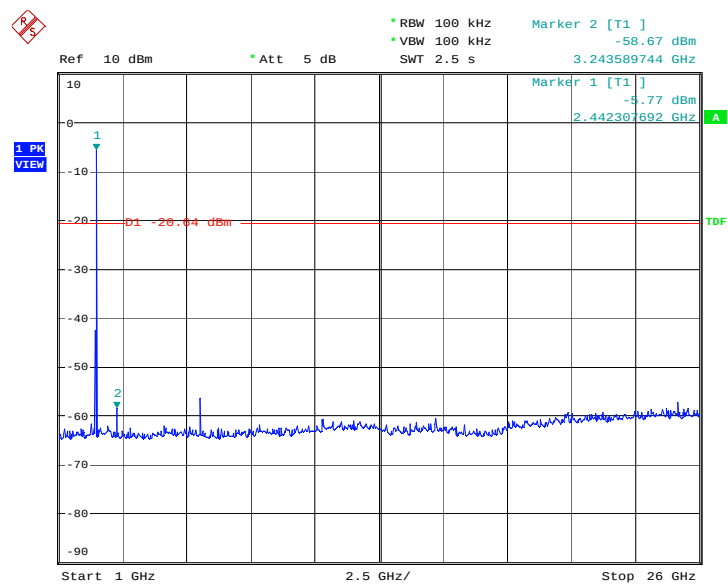
Date: 22.OCT.2009 03:19:54

Fig. 34 Conducted spurious emission: 8DPSK, Channel 39, 2441MHz



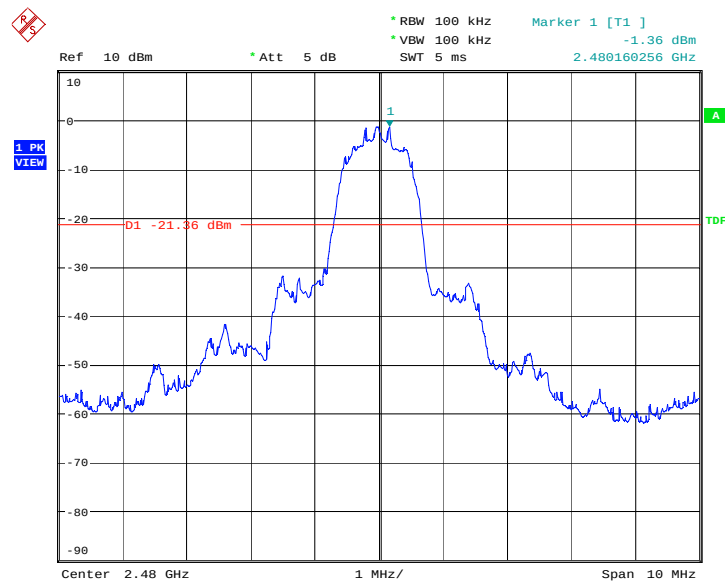
Date: 22.OCT.2009 03:20:10

Fig. 35 Conducted spurious emission: 8DPSK, Channel 39, 30MHz - 1GHz



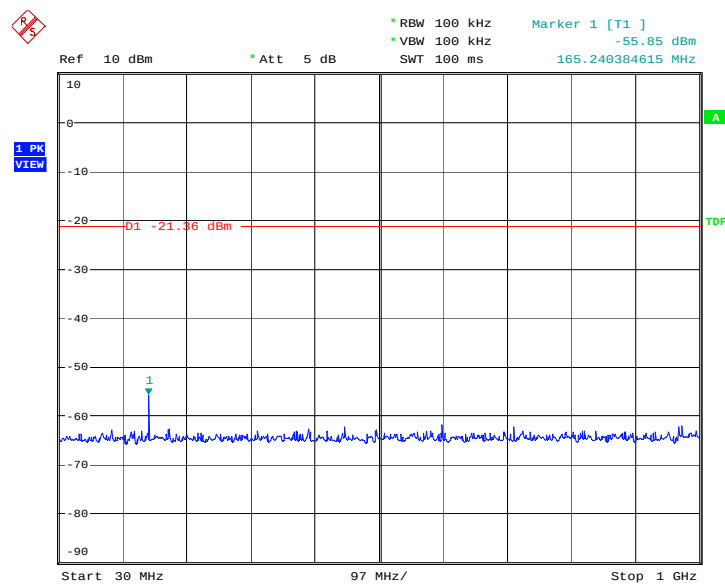
Date: 22.OCT.2009 03:20:42

Fig. 36 Conducted spurious emission: 8DPSK, Channel 39, 1GHz - 26GHz



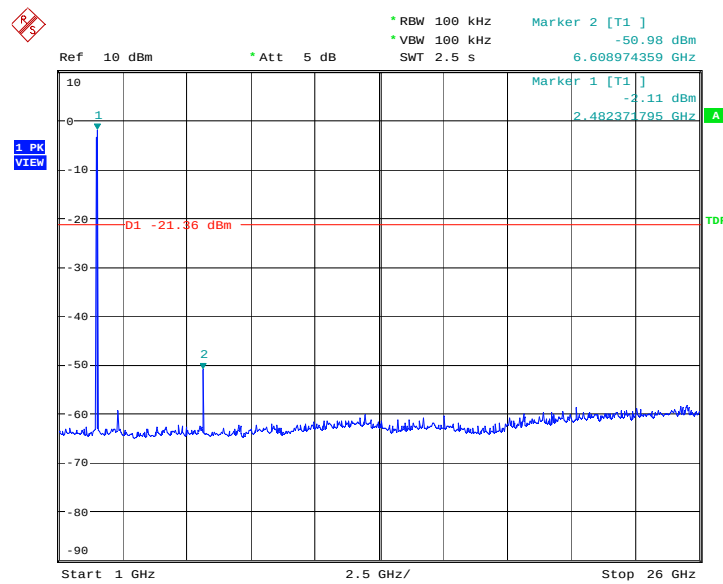
Date: 22.OCT.2009 03:20:58

Fig. 37 Conducted spurious emission: 8DPSK, Channel 78, 2480MHz



Date: 22.OCT.2009 03:21:15

Fig. 38 Conducted spurious emission: 8DPSK, Channel 78, 30MHz - 1GHz



Date: 22.OCT.2009 03:21:46

Fig. 39 Conducted spurious emission: 8DPSK, Channel 78, 1GHz - 26GHz

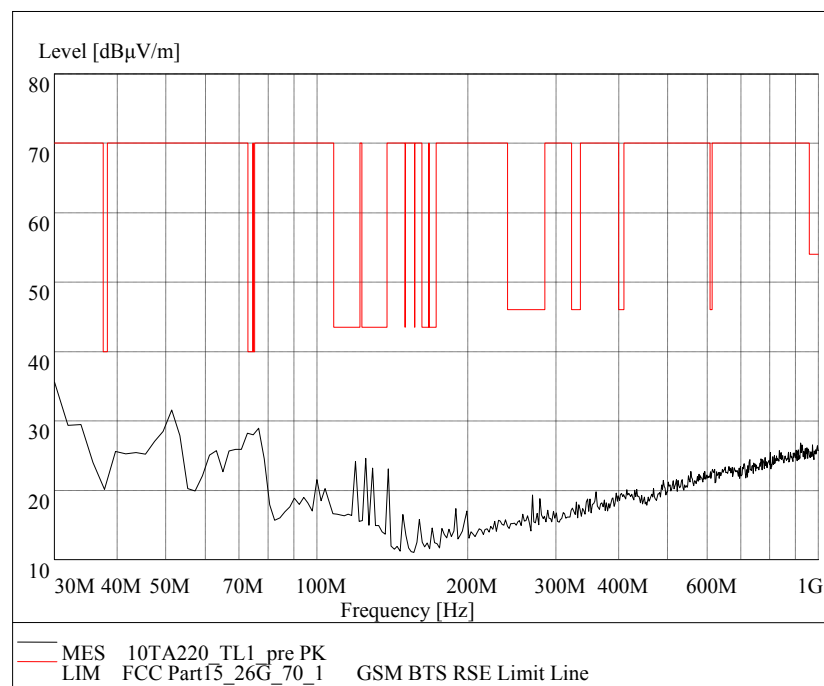


Fig. 40 Radiated emission: GFSK, Channel 0, 30 MHz - 1 GHz

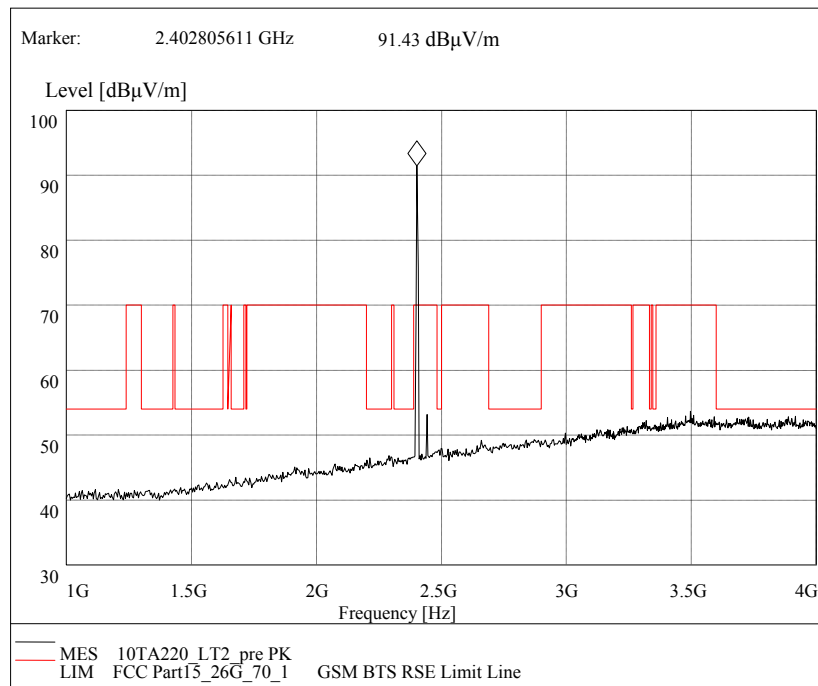


Fig. 41 Radiated emission: GFSK, Channel 0, 1 GHz - 4 GHz

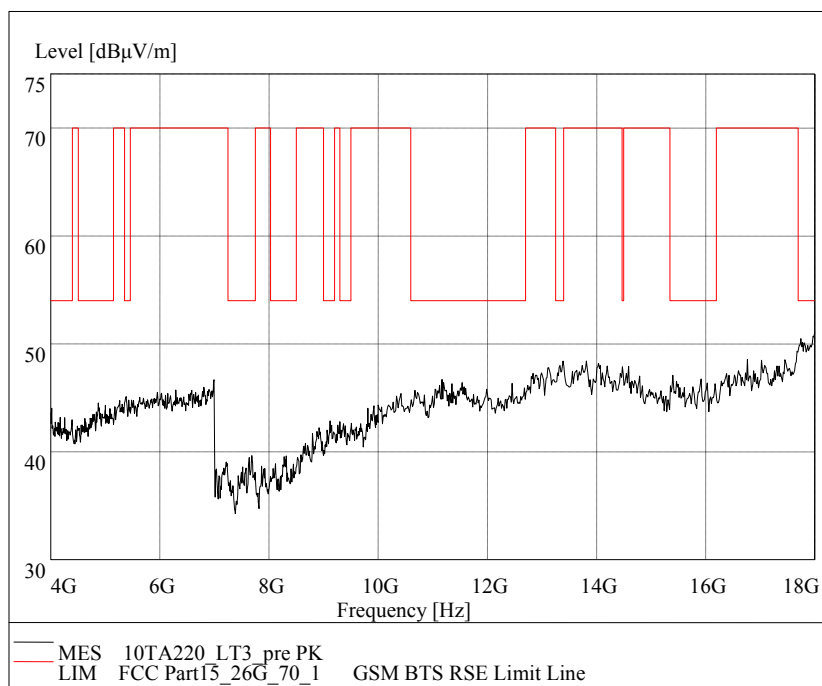


Fig. 42 Radiated emission: GFSK, Channel 0, 4 GHz - 18 GHz

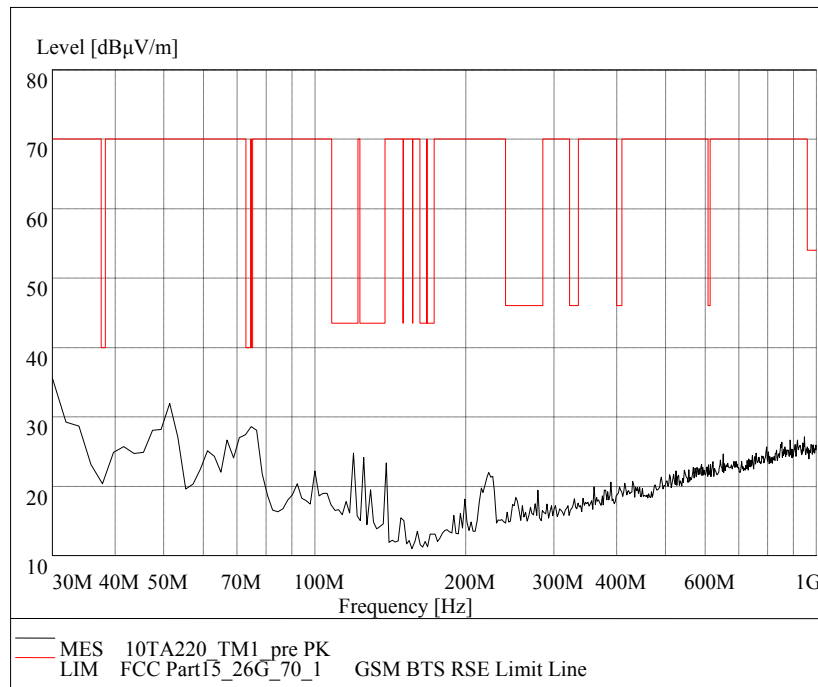


Fig. 43 Radiated emission: GFSK, Channel 39, 30 MHz - 1 GHz

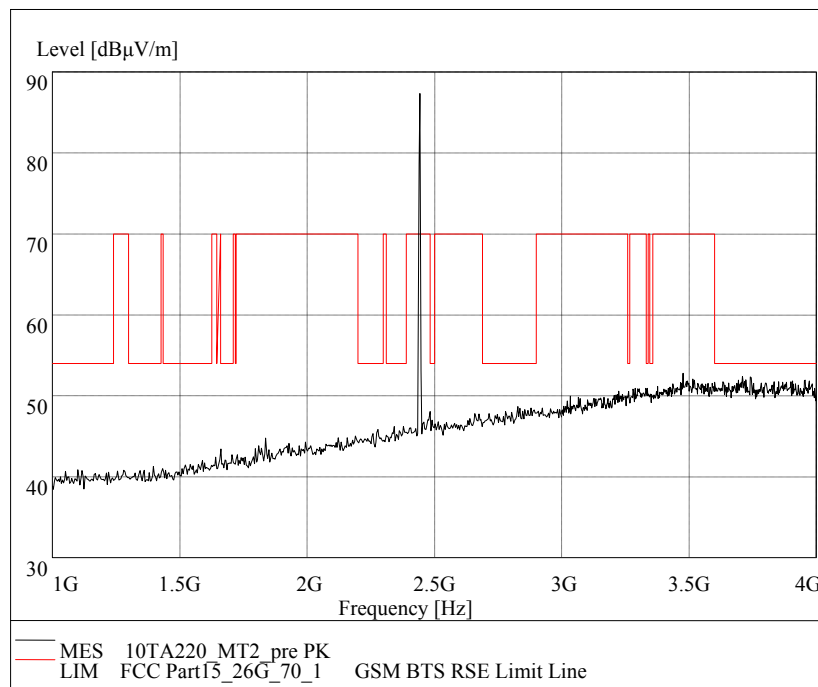


Fig. 44 Radiated emission: GFSK, Channel 39, 1 GHz - 4 GHz

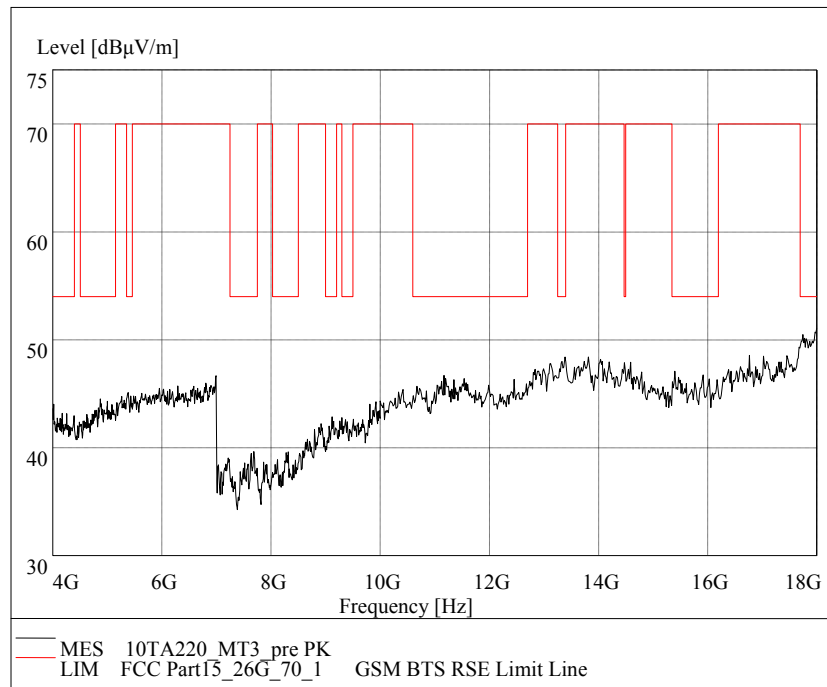


Fig. 45 Radiated emission: GFSK, Channel 39, 4 GHz - 18 GHz

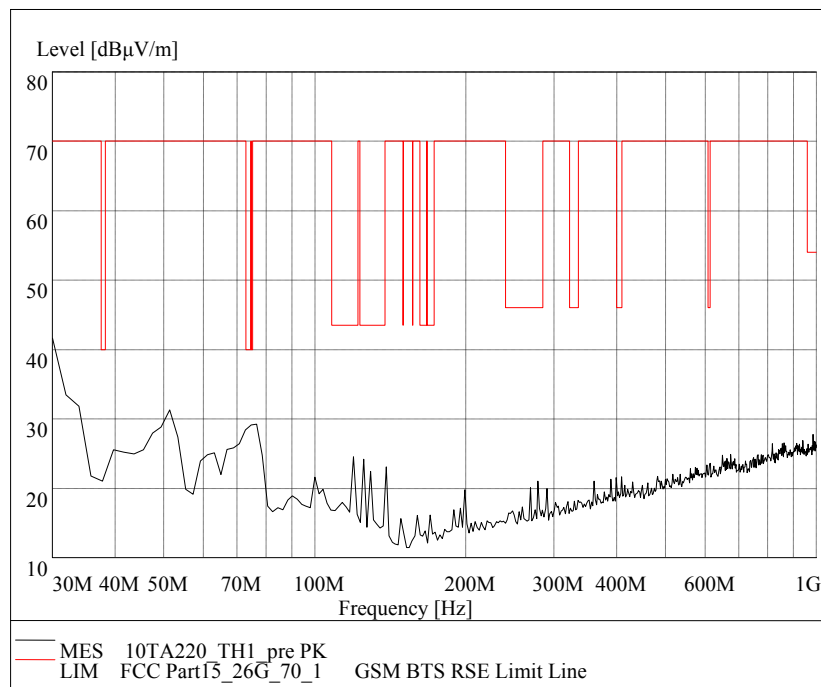


Fig. 46 Radiated emission: GFSK, Channel 78, 30 MHz - 1 GHz

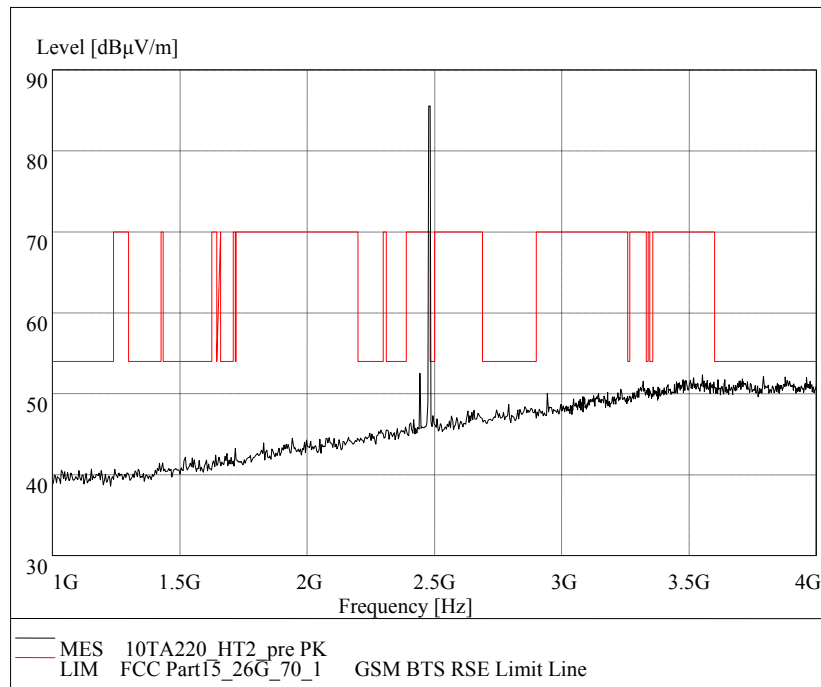


Fig. 47 Radiated emission: GFSK, Channel 78, 1 GHz - 4 GHz

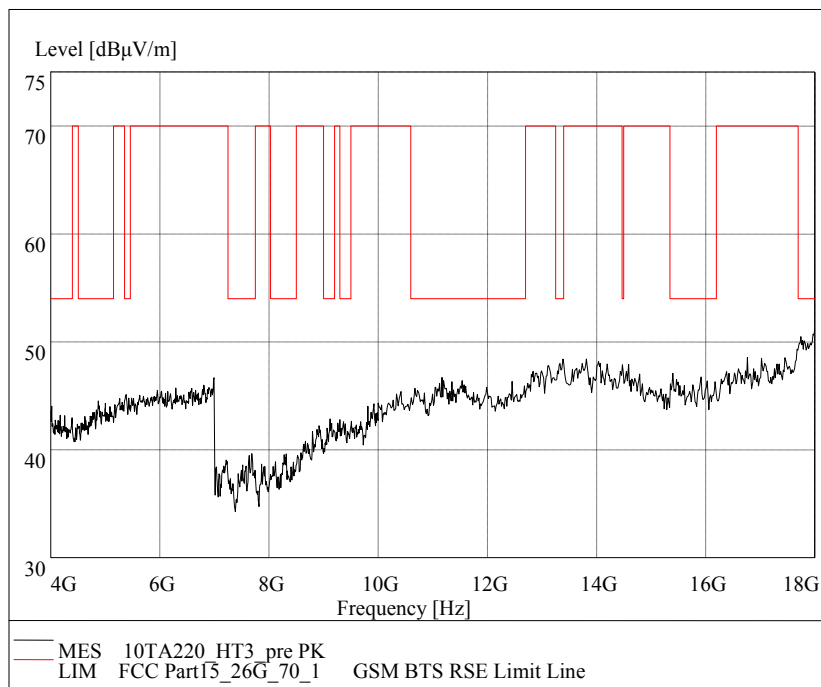


Fig. 48 Radiated emission: GFSK, Channel 78, 4 GHz - 18 GHz

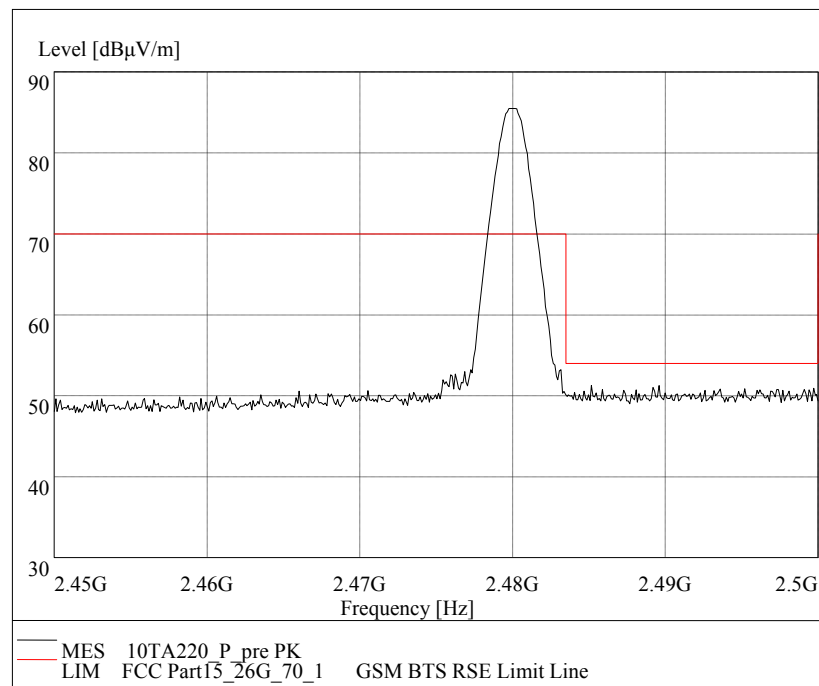


Fig. 49 Radiated emission (Power): GFSK, 2.45GHz - 2.5GHz

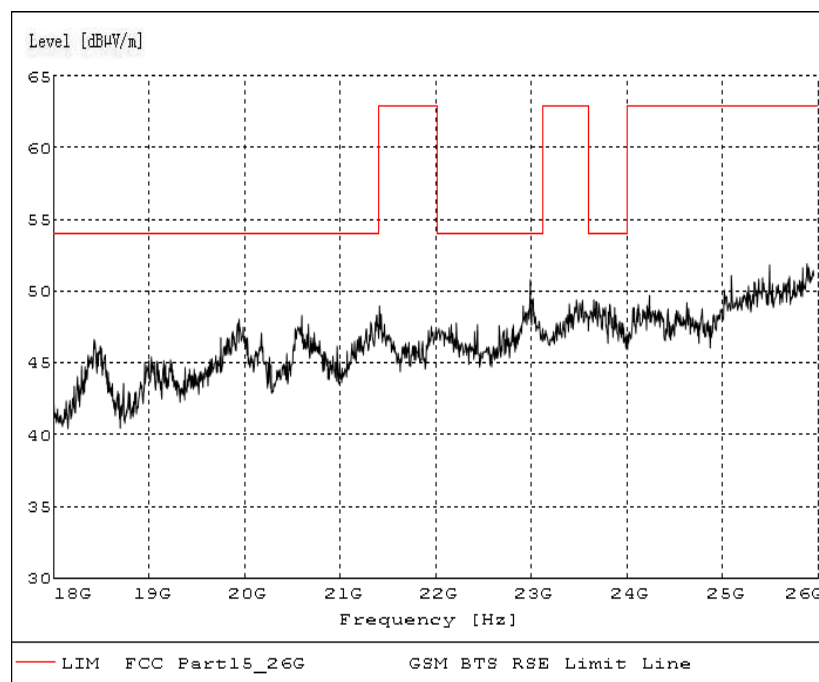


Fig. 50 Radiated emission: GFSK, 18 GHz - 26 GHz

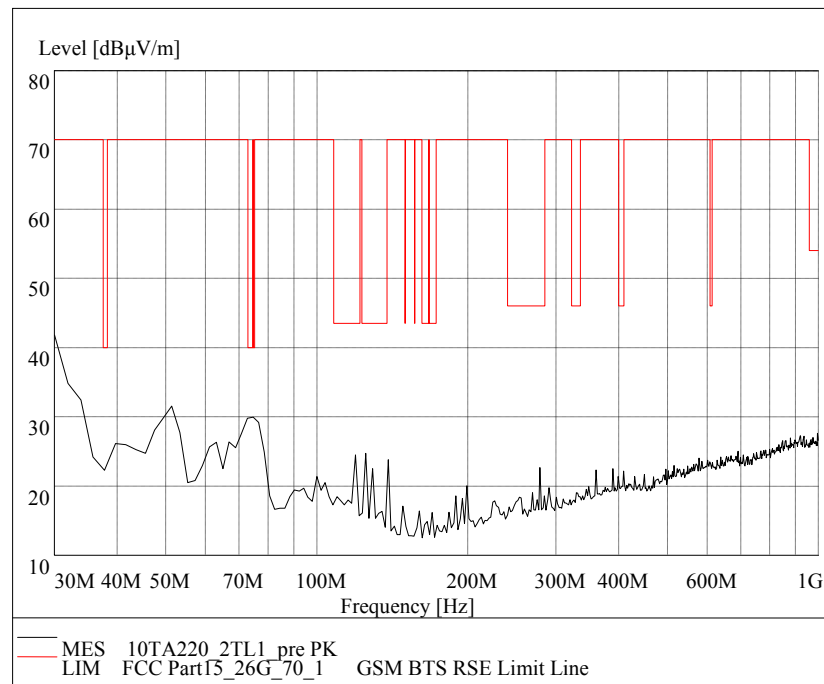


Fig. 51 Radiated emission: $\pi/4$ DQPSK, Channel 0, 30 MHz - 1 GHz

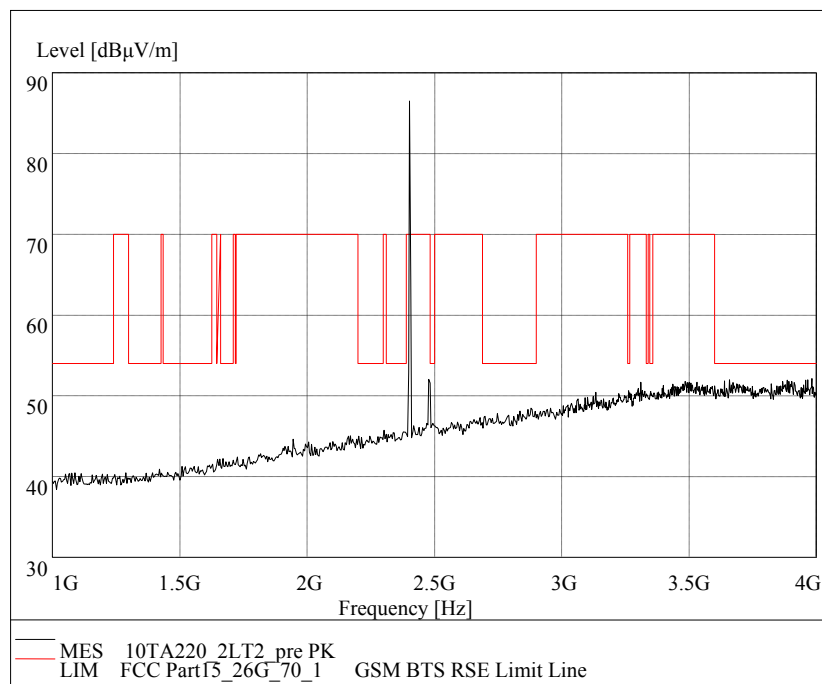


Fig. 52 Radiated emission: $\pi/4$ DQPSK, Channel 0, 1 GHz - 4 GHz

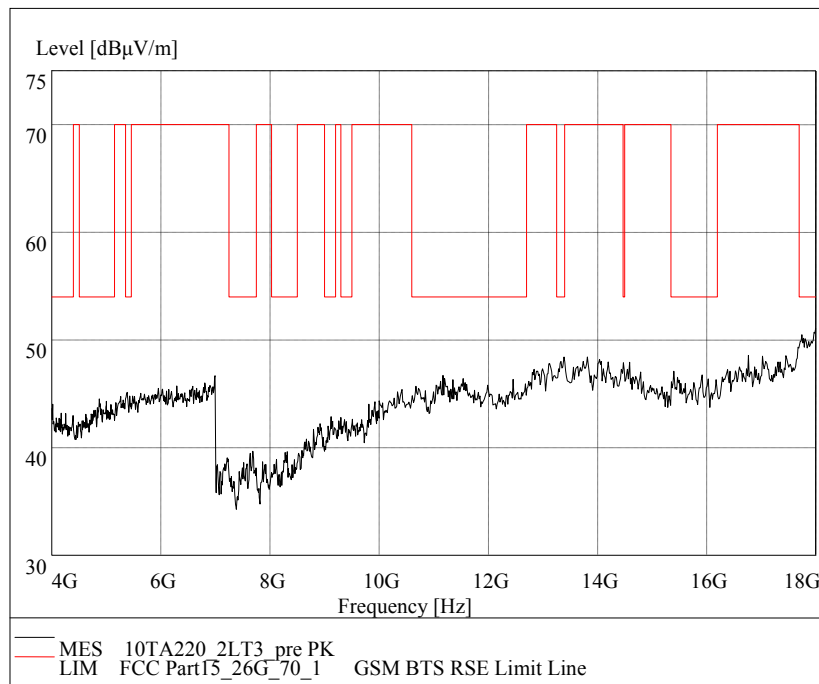


Fig. 53 Radiated emission: $\pi/4$ DQPSK, Channel 0, 4 GHz - 18 GHz

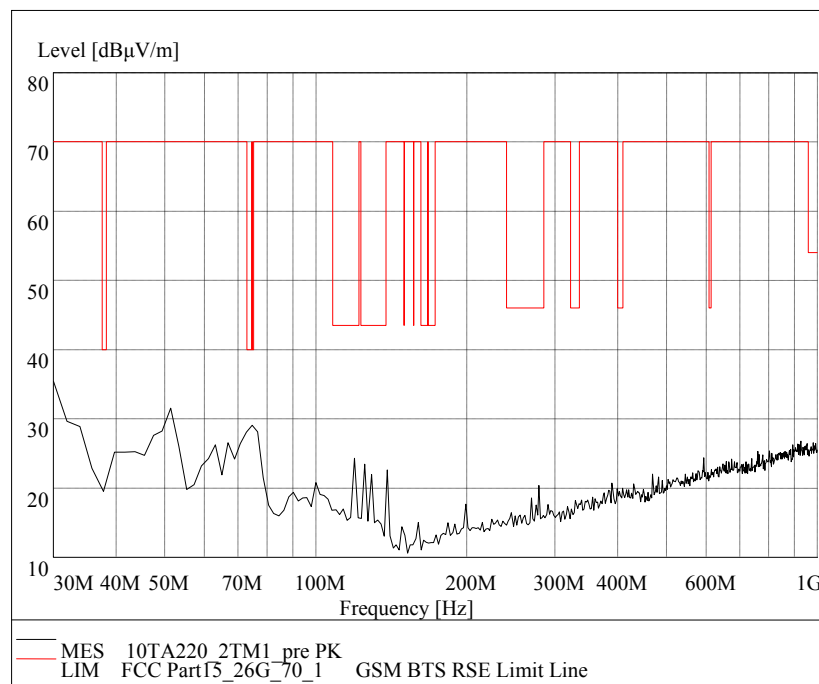


Fig. 54 Radiated emission: $\pi/4$ DQPSK, Channel 39, 30 MHz - 1 GHz

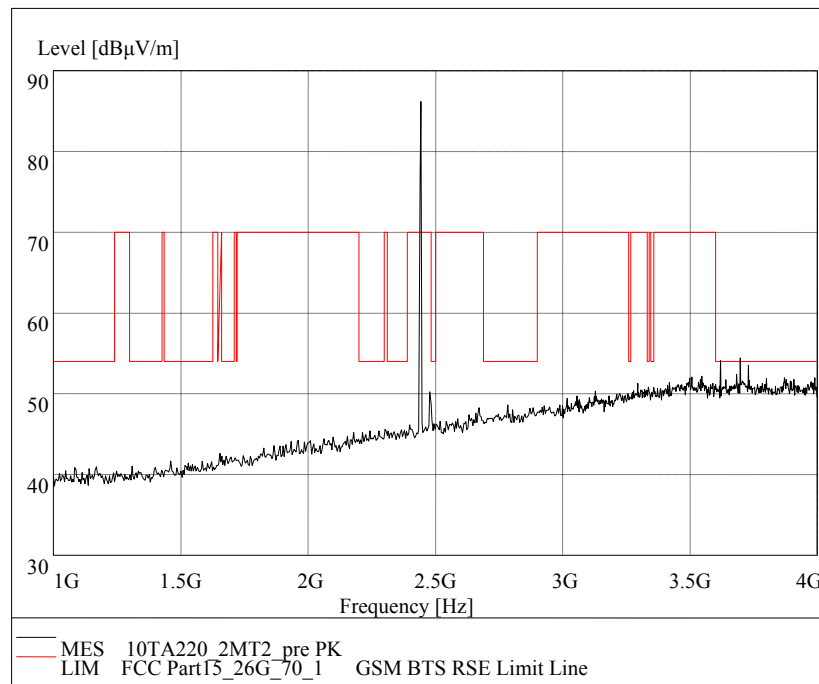


Fig. 55 Radiated emission: $\pi/4$ DQPSK, Channel 39, 1 GHz - 4 GHz

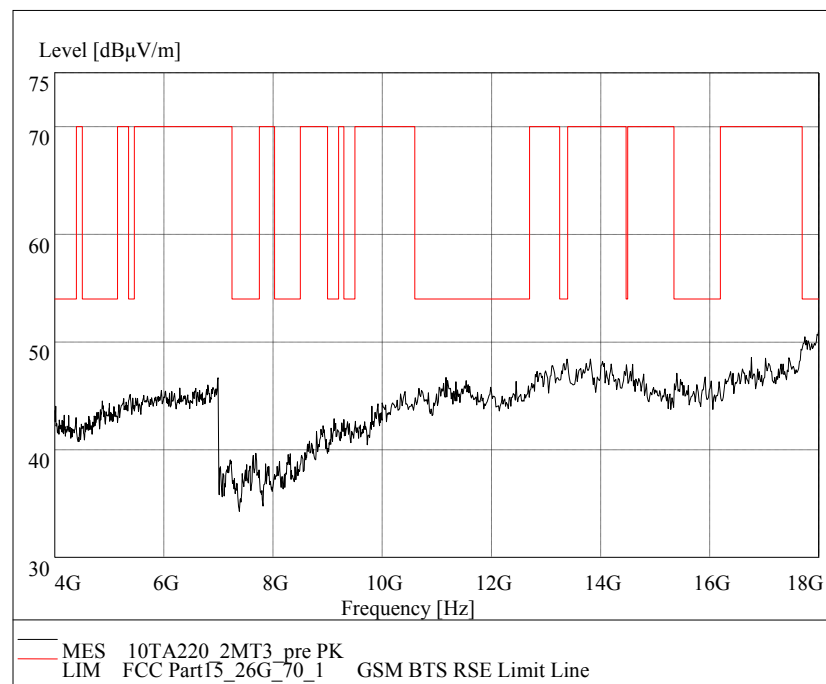


Fig. 56 Radiated emission: $\pi/4$ DQPSK, Channel 39, 4 GHz - 18 GHz

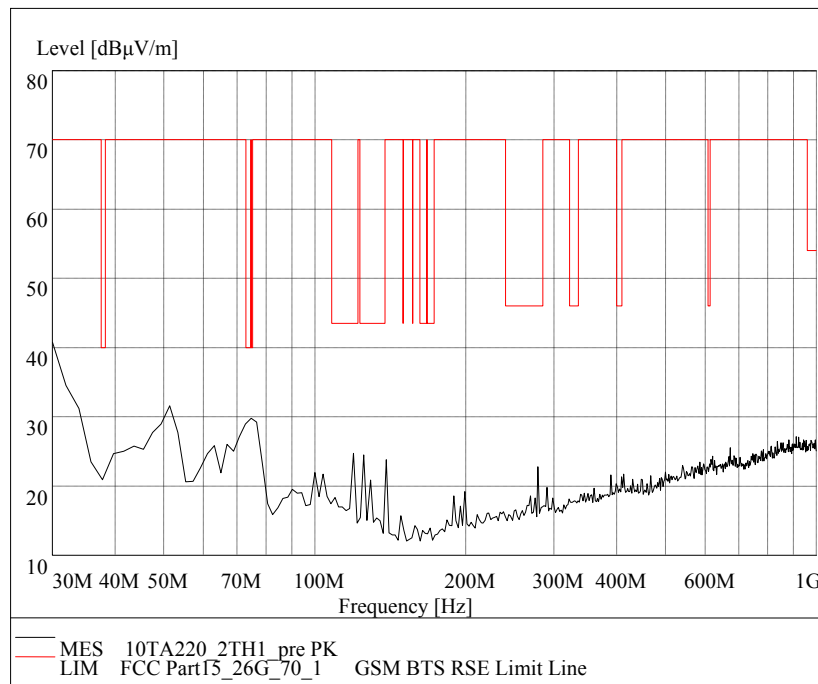


Fig. 57 Radiated emission: $\pi/4$ DQPSK, Channel 78, 30 MHz - 1 GHz

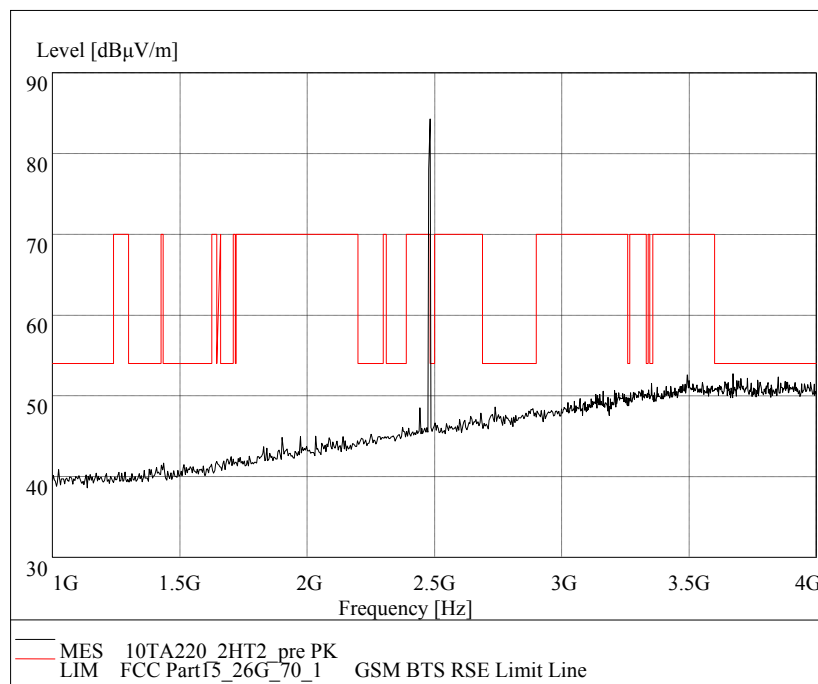


Fig. 58 Radiated emission: $\pi/4$ DQPSK, Channel 78, 1 GHz - 4 GHz

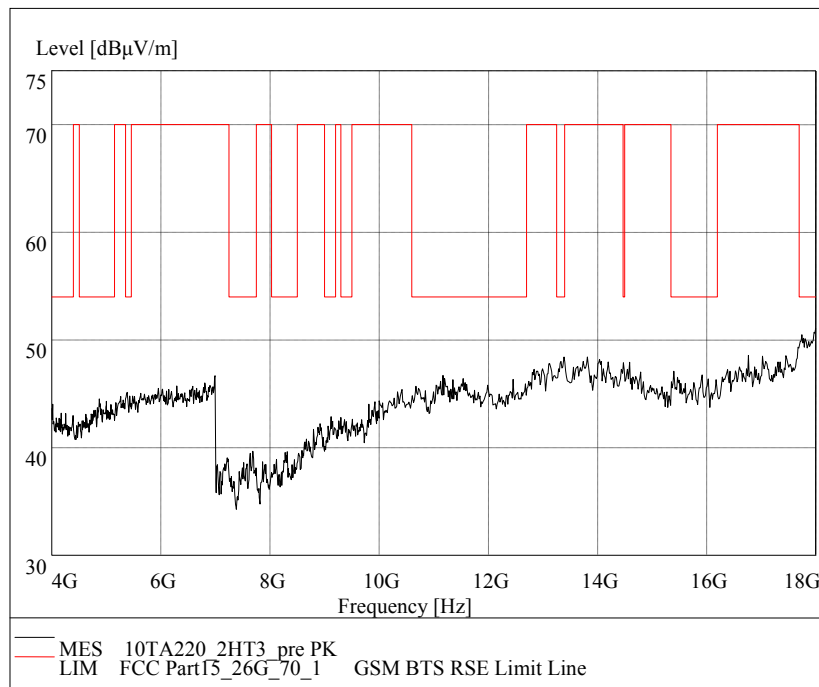


Fig. 59 Radiated emission: $\pi/4$ DQPSK, Channel 78, 4 GHz - 18 GHz

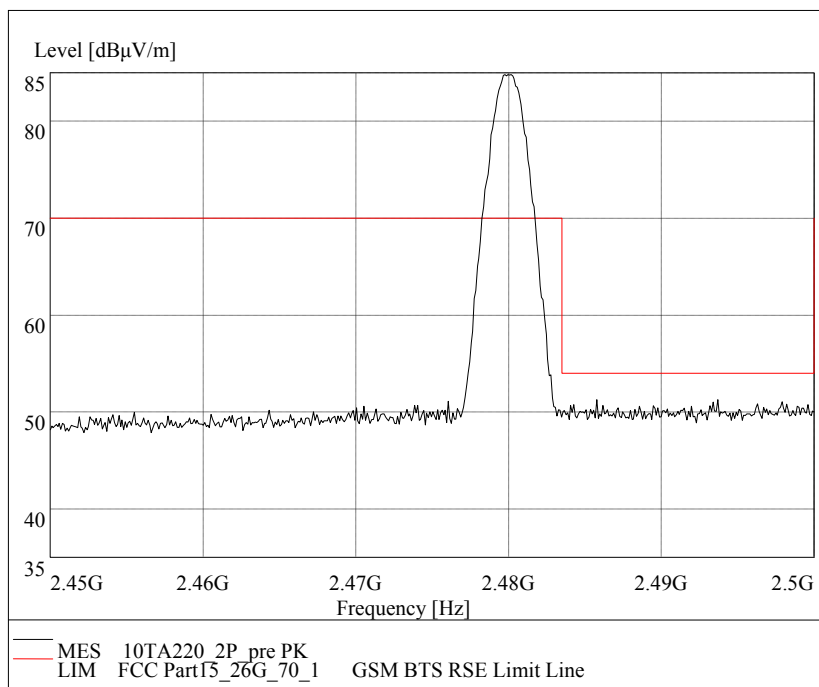


Fig. 60 Radiated emission (Power): $\pi/4$ DQPSK, 2.45GHz - 2.5GHz

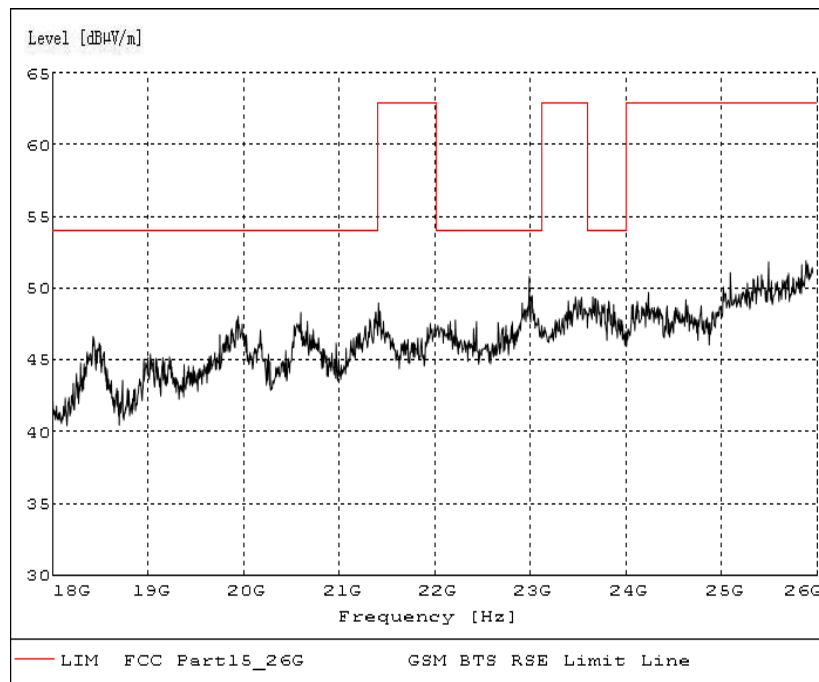


Fig. 61 Radiated emission: $\pi/4$ DQPSK, 18 GHz - 26 GHz

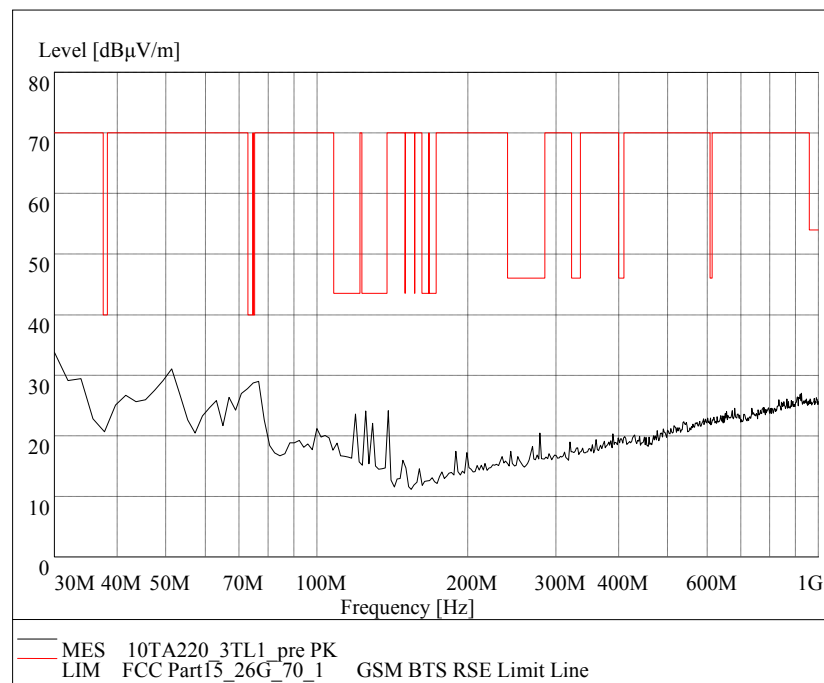


Fig. 62 Radiated emission: 8DPSK, Channel 0, 30 MHz - 1 GHz

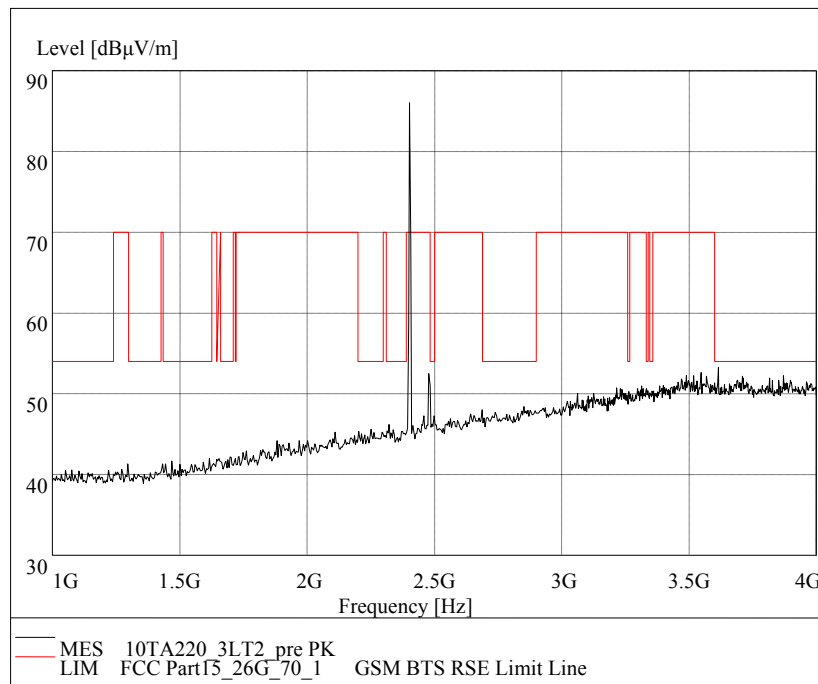


Fig. 63 Radiated emission: 8DPSK, Channel 0, 1 GHz - 4 GHz

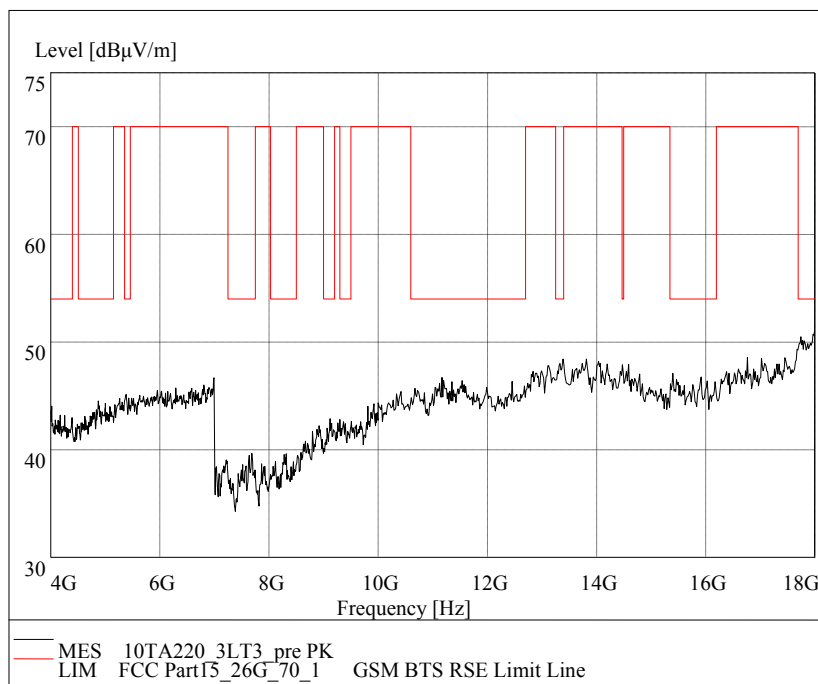


Fig. 64 Radiated emission: 8DPSK, Channel 0, 4 GHz - 18 GHz

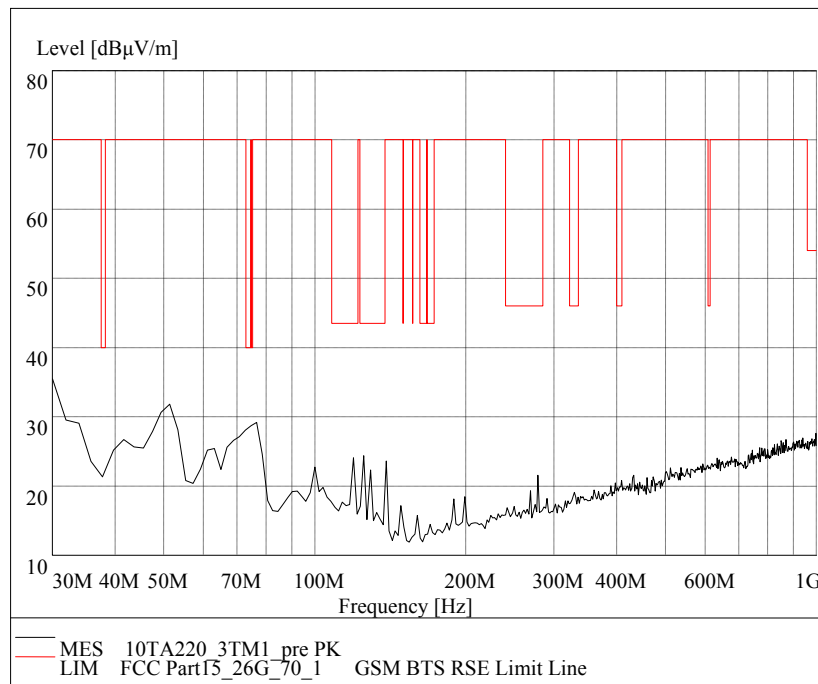


Fig. 65 Radiated emission: 8DPSK, Channel 39, 30 MHz - 1 GHz

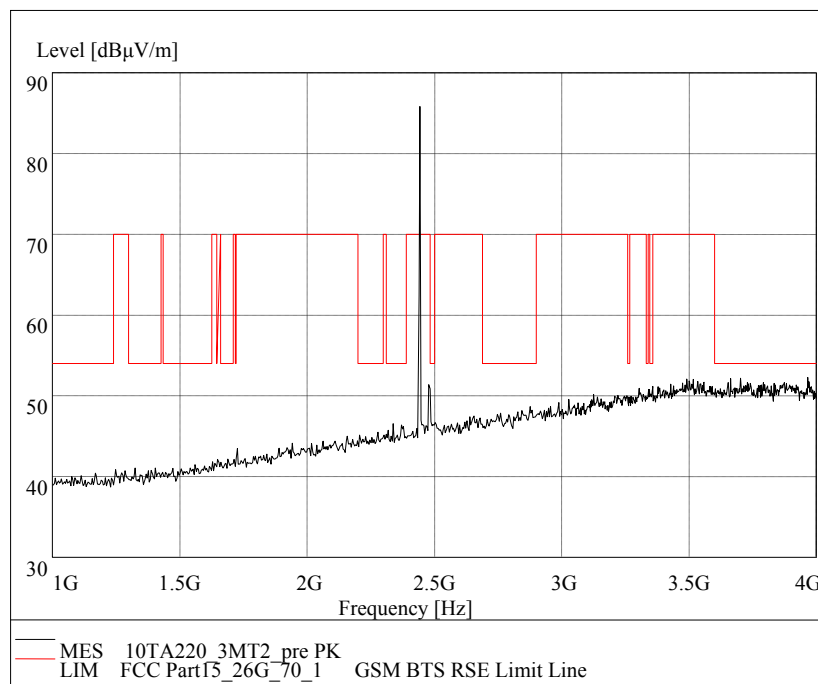


Fig. 66 Radiated emission: 8DPSK, Channel 39, 1 GHz - 4 GHz

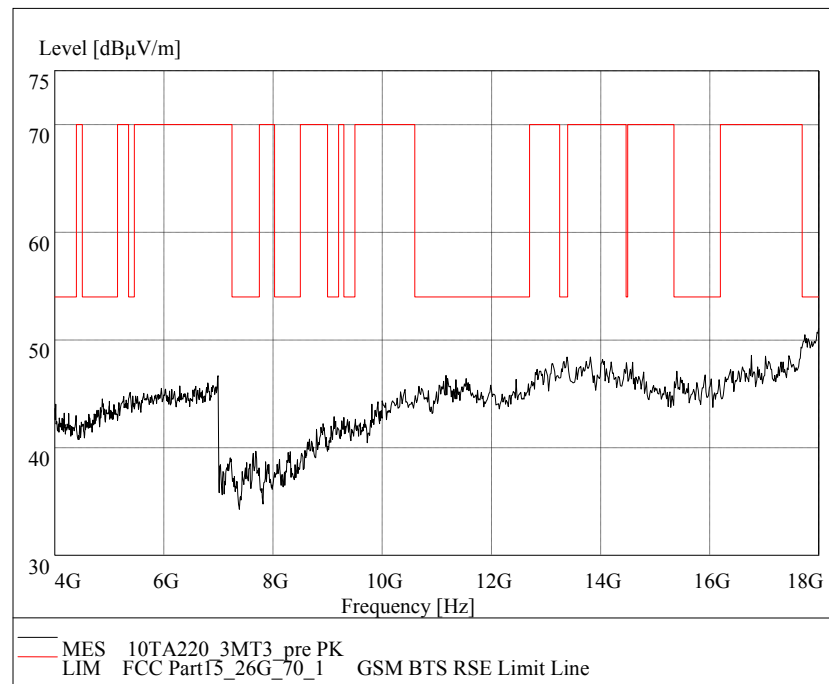


Fig. 67 Radiated emission: 8DPSK, Channel 39, 4 GHz - 18 GHz

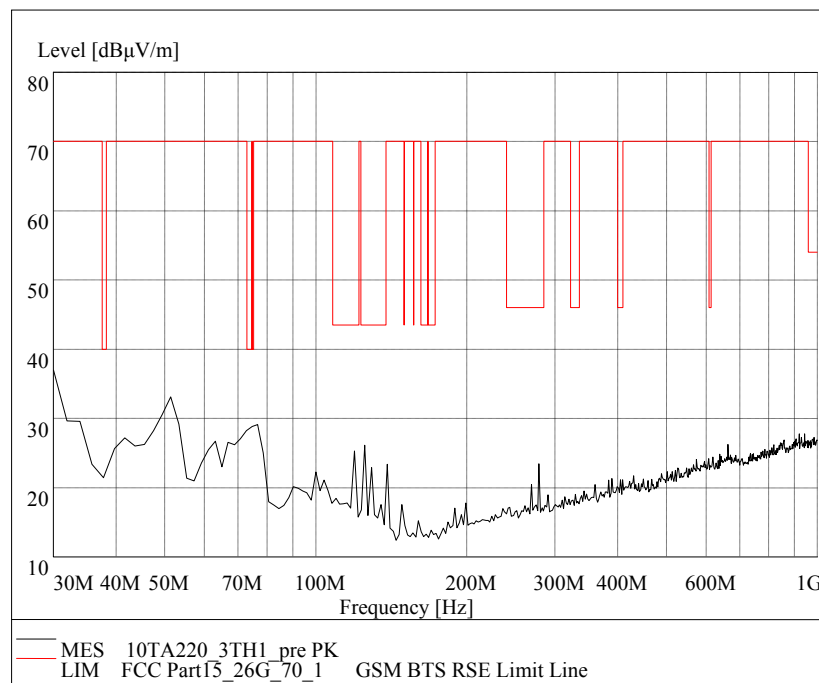


Fig. 68 Radiated emission: 8DPSK, Channel 78, 30 MHz - 1 GHz

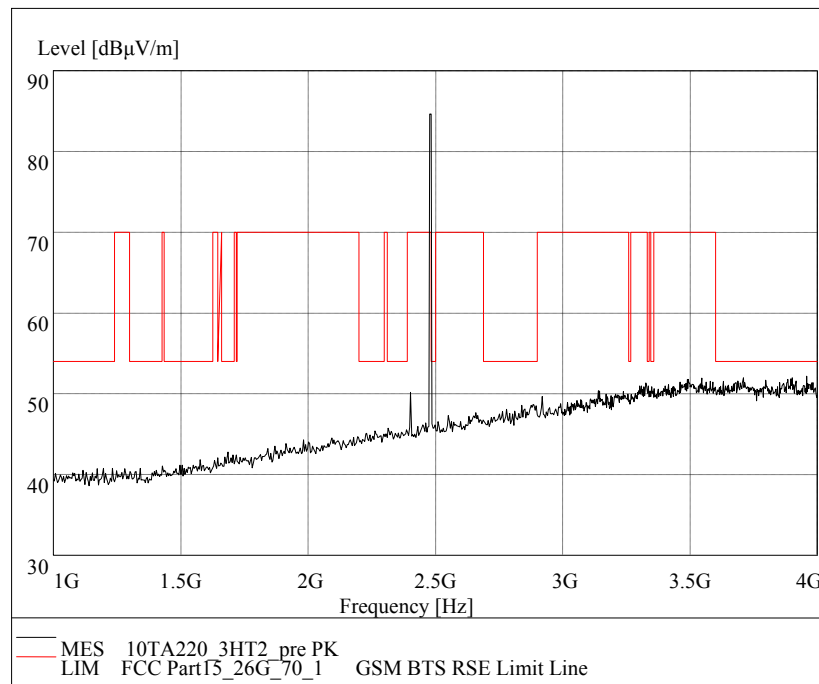


Fig. 69 Radiated emission: 8DPSK, Channel 78, 1 GHz - 4 GHz

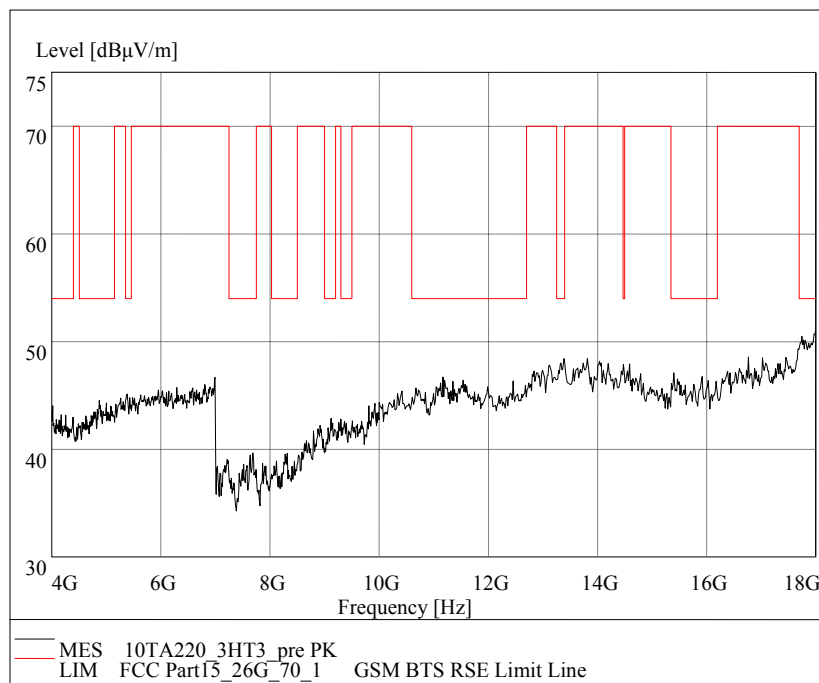


Fig. 70 Radiated emission: 8DPSK, Channel 78, 4 GHz - 18 GHz

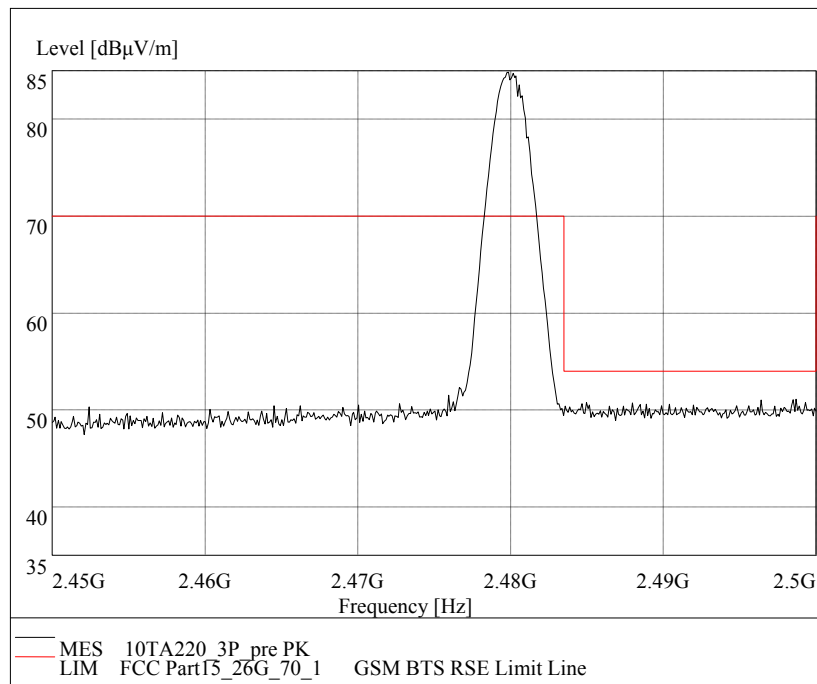


Fig. 71 Radiated emission (Power): 8DPSK, 2.45GHz - 2.5GHz

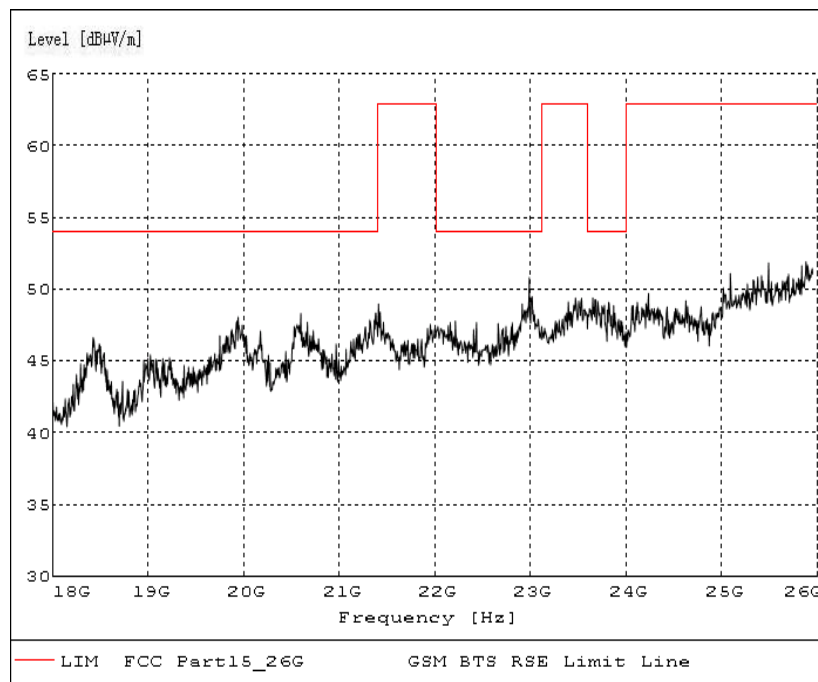
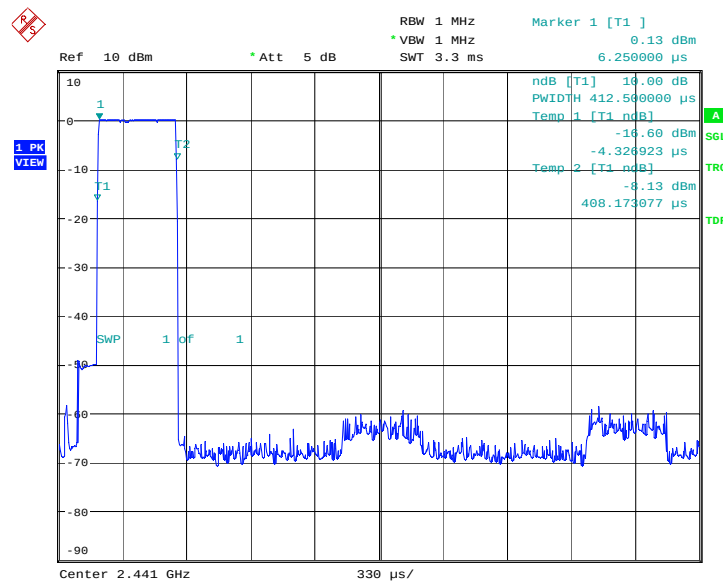
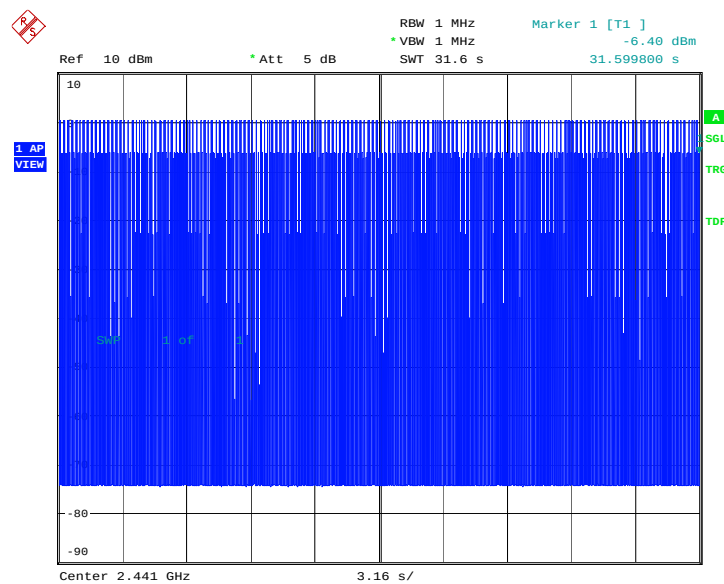


Fig. 72 Radiated emission: 8DPSK, 18 GHz - 26 GHz



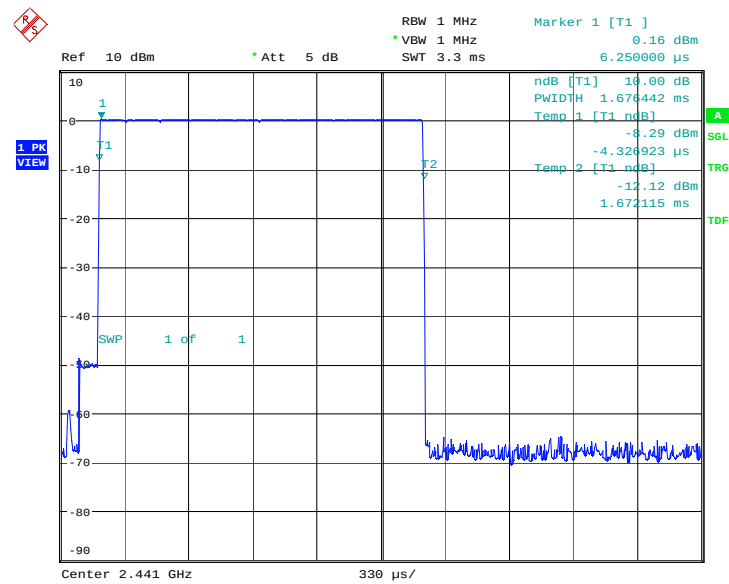
Date: 22.OCT.2009 03:49:37

Fig. 73 Time of occupancy (Dwell Time): Channel 39, Packet DH1



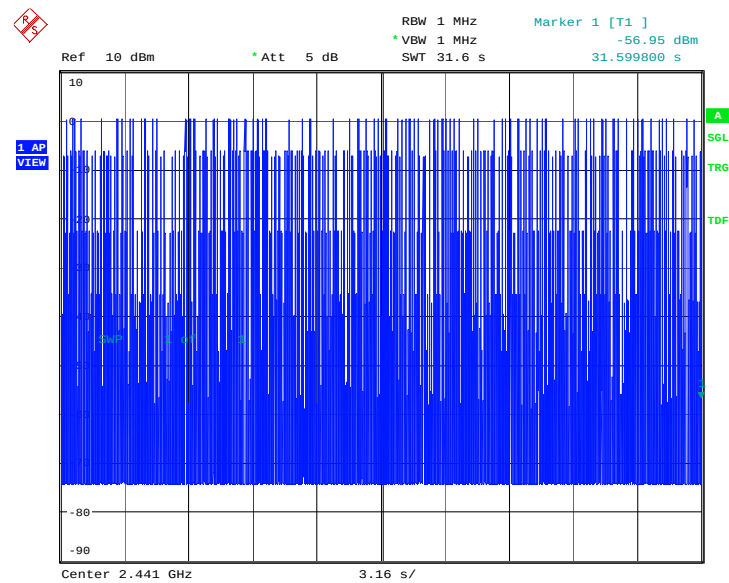
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Fig. 74 Number of Transmissions Measurement:Channel 39,Packet DH1



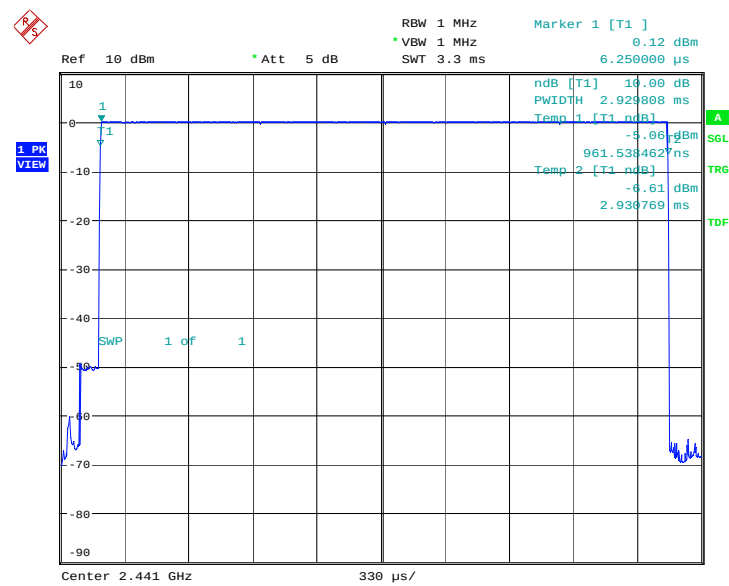
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Fig. 75 Time of occupancy (Dwell Time): Channel 39, Packet DH3



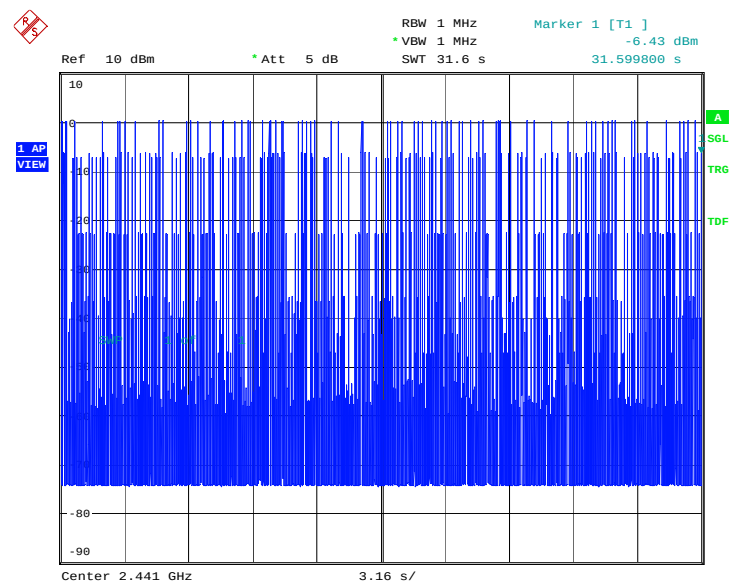
Date: 22.OCT.2009 03:50:45

Fig. 76 Number of Transmissions Measurement: Channel 39, Packet DH3



Date: 22.OCT.2009 03:52:15

Fig. 77 Time of occupancy (Dwell Time): Channel 39, Packet DH5



Date: 22.OCT.2009 03:52:03

Fig. 78 Number of Transmissions Measurement:Channel 39,Packet DH5

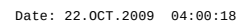


Fig. 79 Time of occupancy (Dwell Time): Channel 39, Packet 2-DH1

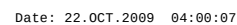
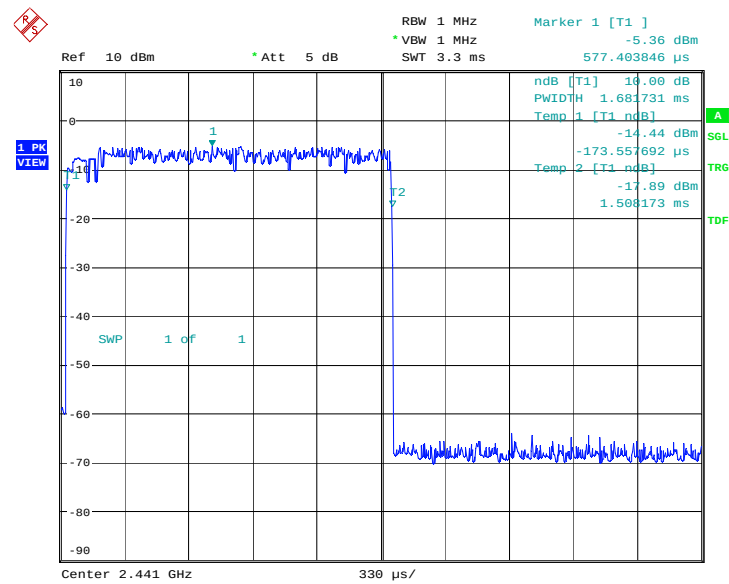
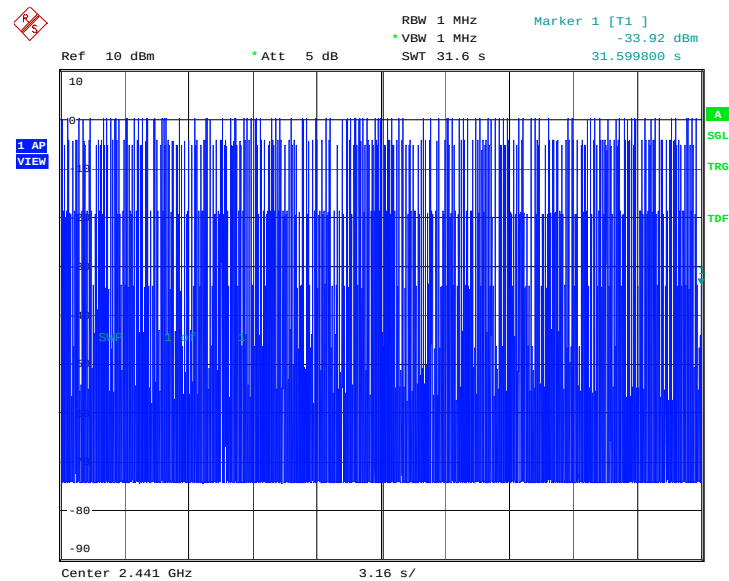


Fig. 80 Number of Transmissions Measurement:Channel 39,Packet 2-DH1



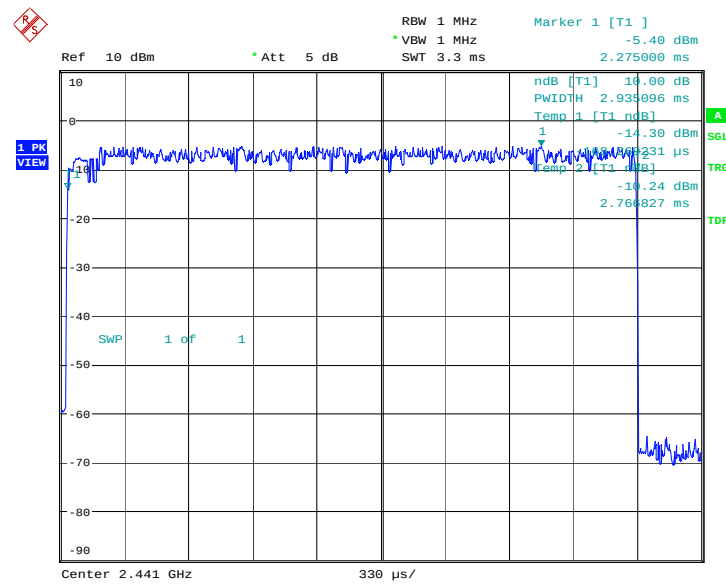
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Fig. 81 Time of occupancy (Dwell Time): Channel 39, Packet 2-DH3



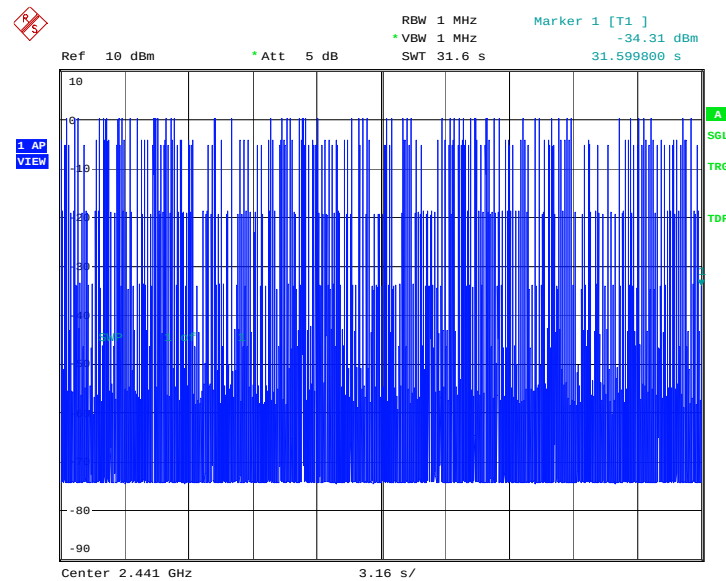
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Fig. 82 Number of Transmissions Measurement:Channel 39,Packet 2-DH3



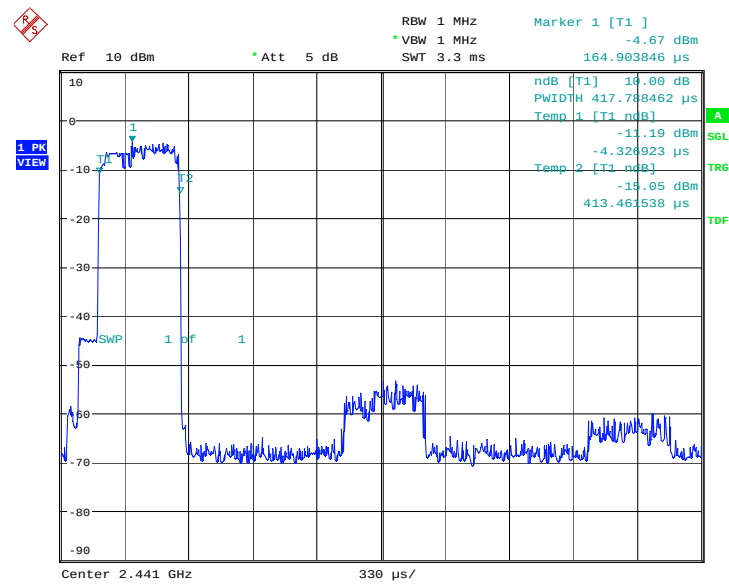
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Fig. 83 Time of occupancy (Dwell Time): Channel 39, Packet 2-DH5



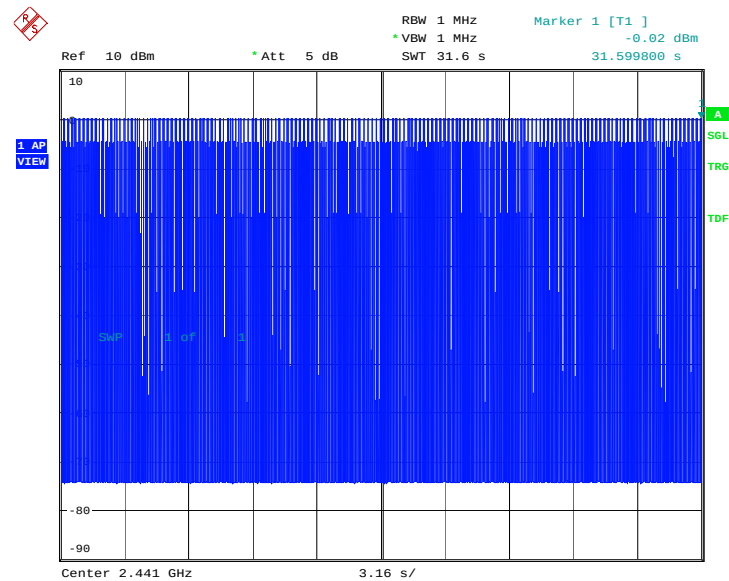
Date: 22.OCT.2009 04:02:45

Fig. 84 Number of Transmissions Measurement:Channel 39,Packet 2-DH5



Date: 22.OCT.2009 03:23:09

Fig. 85 Time of occupancy (Dwell Time): Channel 39, Packet 3-DH1



Date: 22.OCT.2009 03:22:57

Fig. 86 Number of Transmissions Measurement:Channel 39,Packet 3-DH1

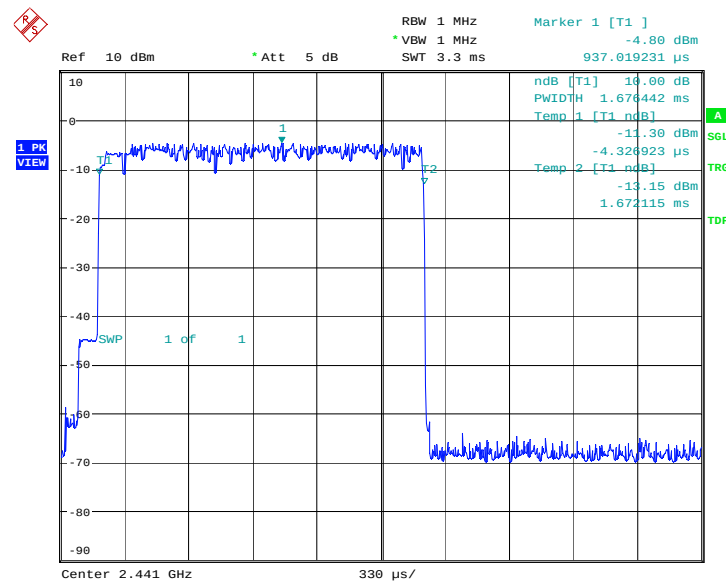


Fig. 87 Time of occupancy (Dwell Time): Channel 39, Packet 3-DH3

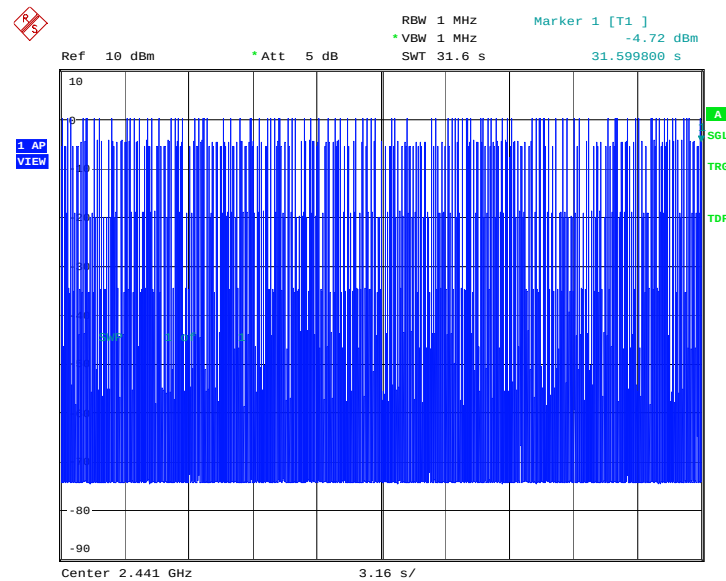


Fig. 88 Number of Transmissions Measurement:Channel 39,Packet 3-DH3

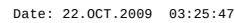


Fig. 89 Time of occupancy (Dwell Time): Channel 39, Packet 3-DH5

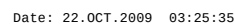
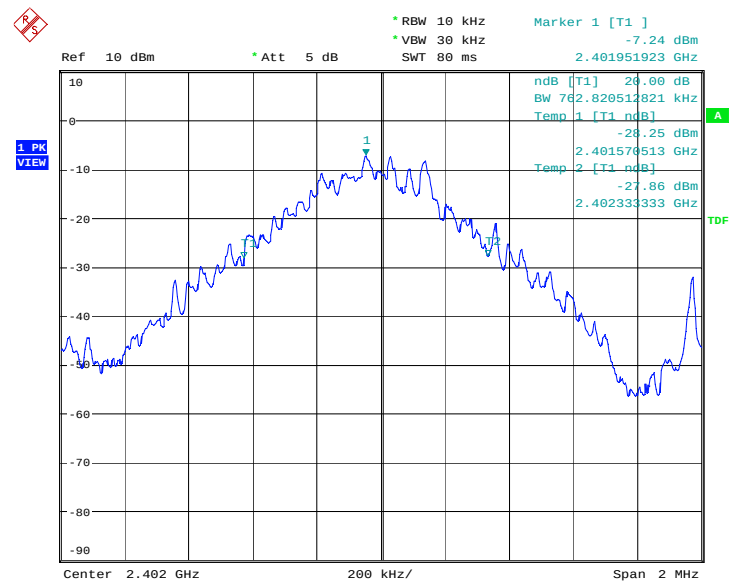
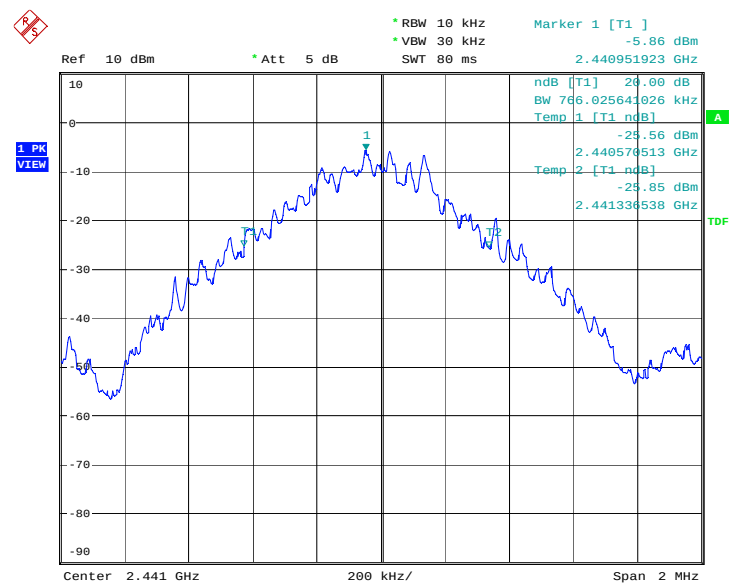


Fig. 90 Number of Transmissions Measurement:Channel 39,Packet 3-DH5



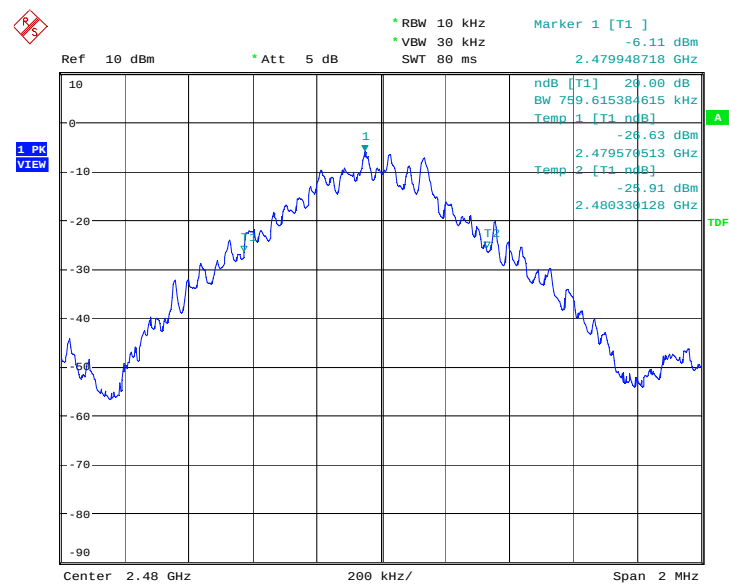
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Fig. 91 20dB Bandwidth: GFSK, Channel 0



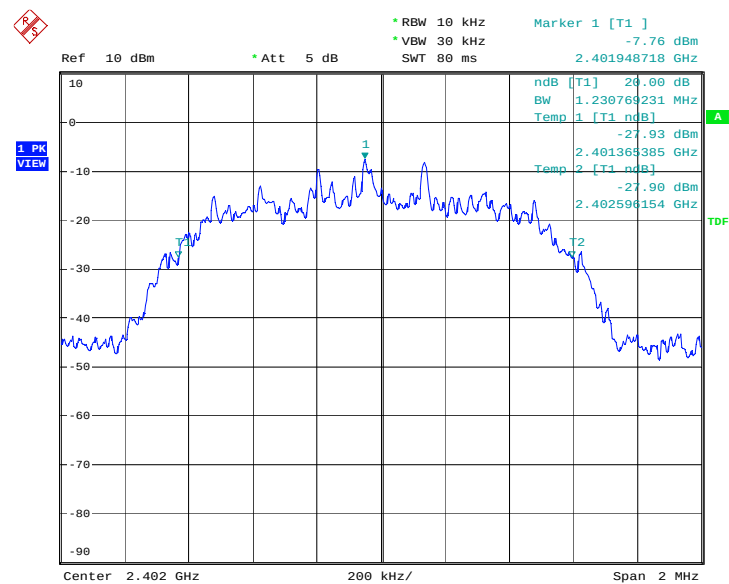
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Fig. 92 20dB Bandwidth: GFSK, Channel 39



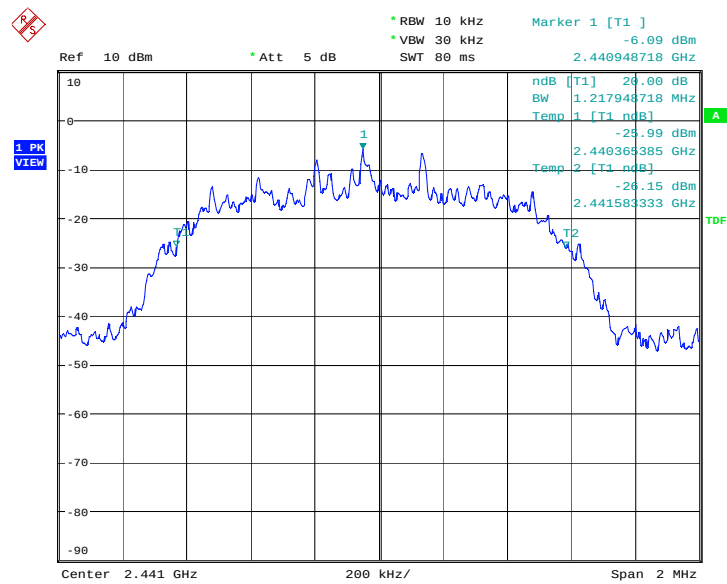
Date: 22.OCT.2009 02:12:59

Fig. 93 20dB Bandwidth: GFSK, Channel 78



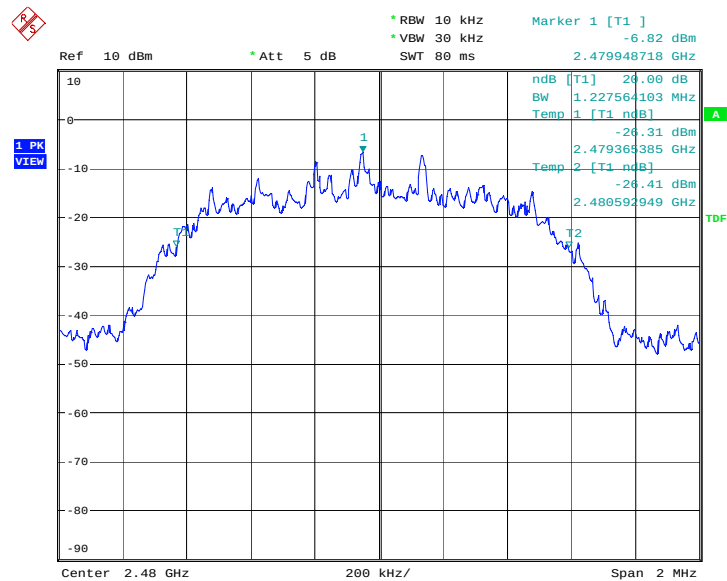
Date: 22.OCT.2009 02:47:35

Fig. 94 20dB Bandwidth: $\pi/4$ DQPSK, Channel 0



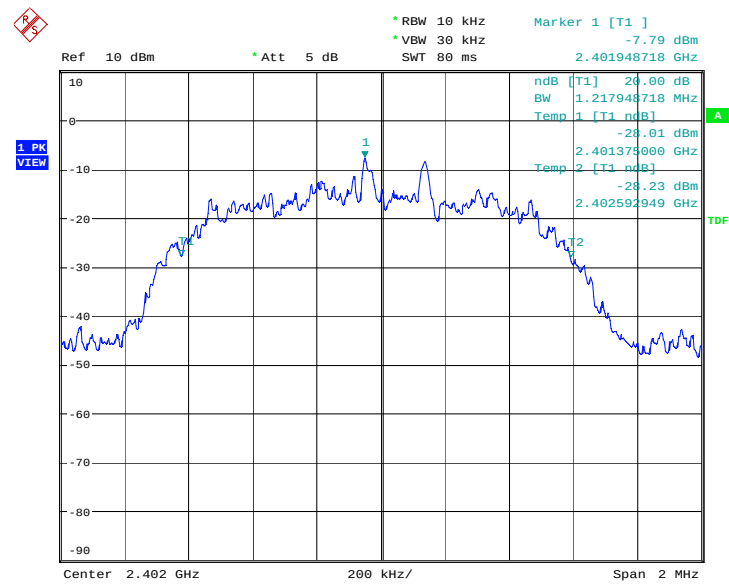
Date: 22.OCT.2009 02:48:07

Fig. 95 20dB Bandwidth: $\pi/4$ DQPSK, Channel 39



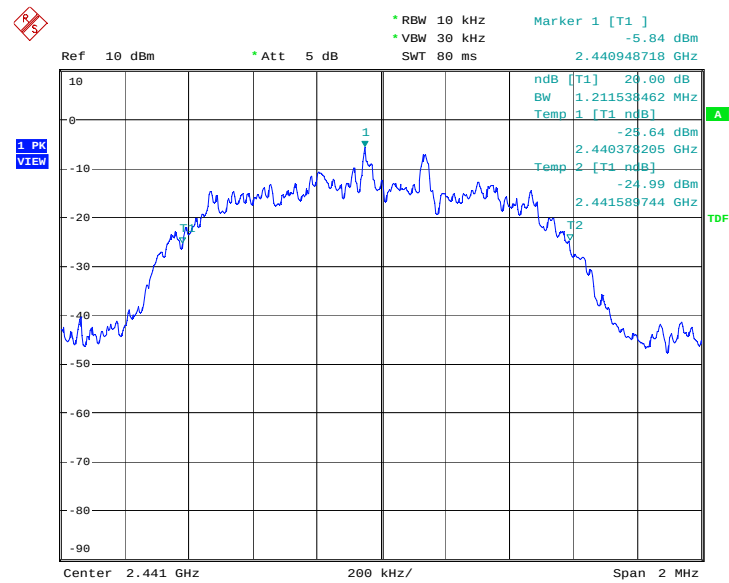
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Fig. 96 20dB Bandwidth: $\pi/4$ DQPSK, Channel 78



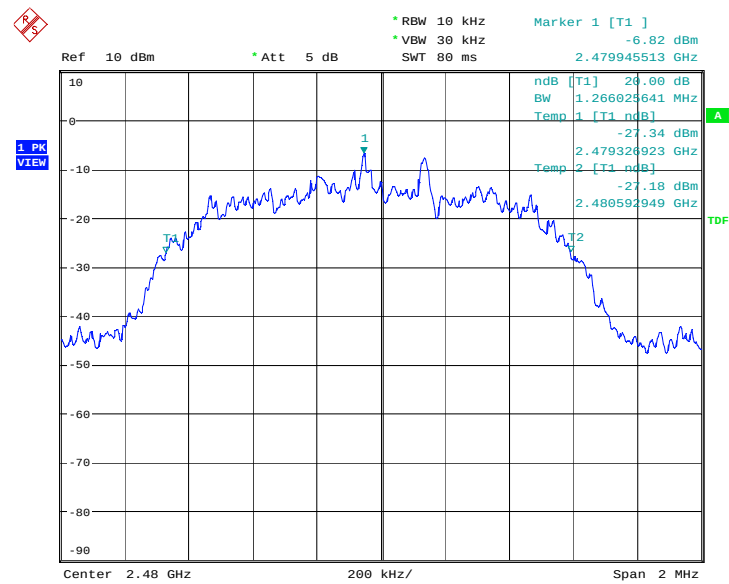
Date: 22.OCT.2009 03:26:20

Fig. 97 20dB Bandwidth: 8DPSK, Channel 0



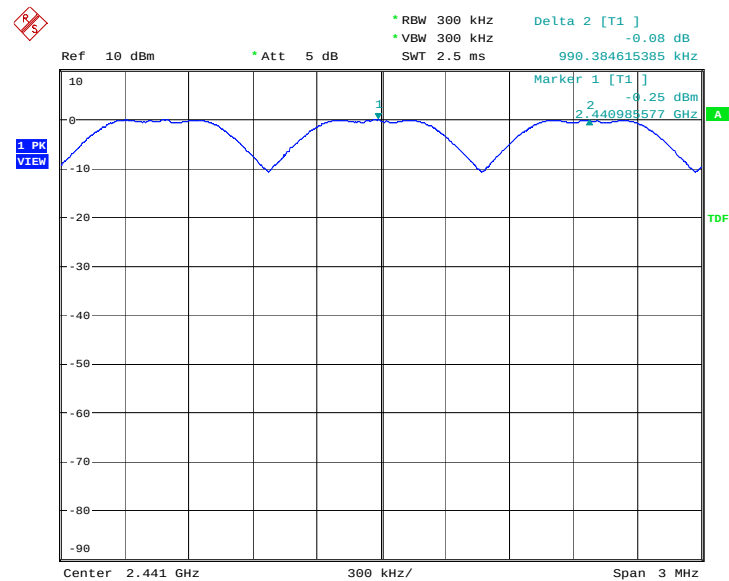
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Fig. 98 20dB Bandwidth: 8DPSK, Channel 39



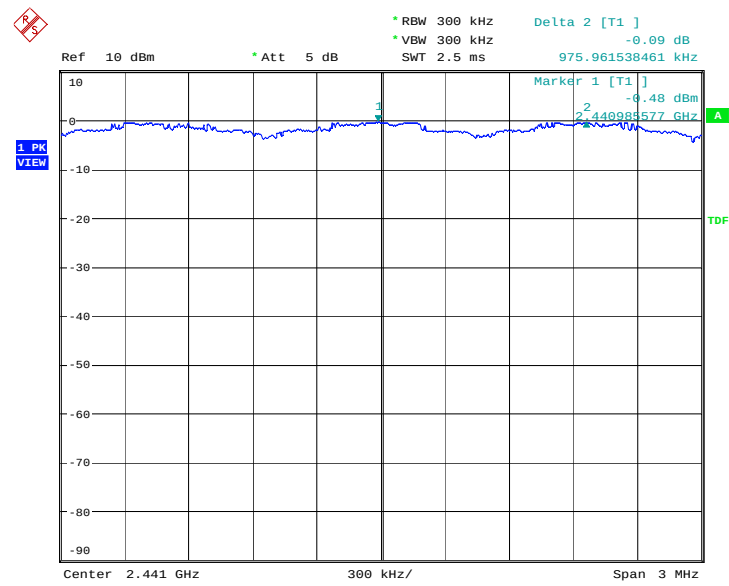
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Fig. 99 20dB Bandwidth: 8DPSK, Channel 78



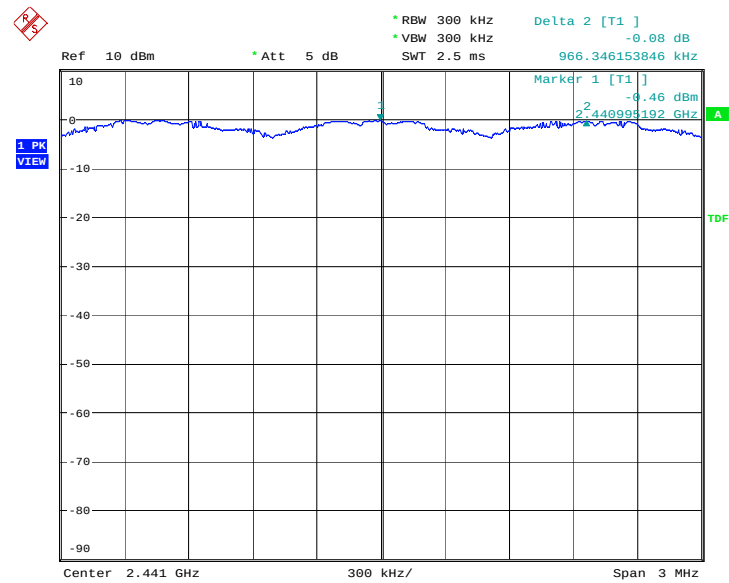
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Fig. 100 Carrier frequency separation measurement: GFSK, Channel 39



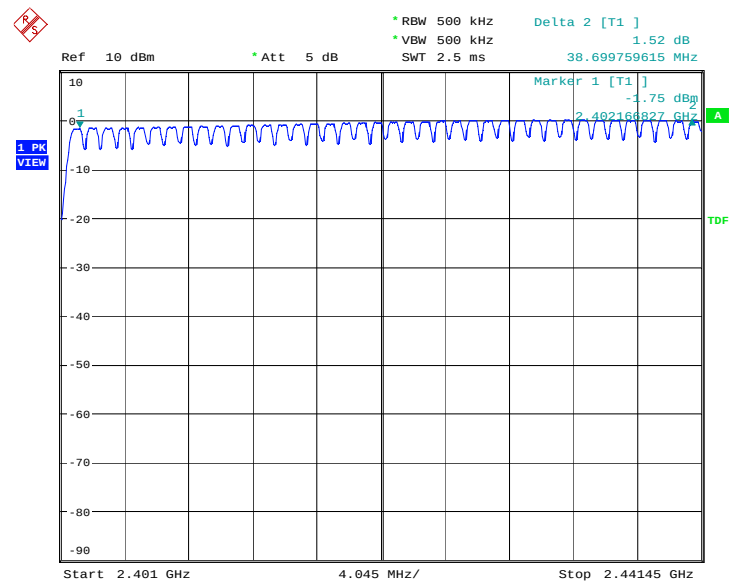
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Fig. 101 Carrier frequency separation measurement: $\pi/4$ DQPSK, Channel 39



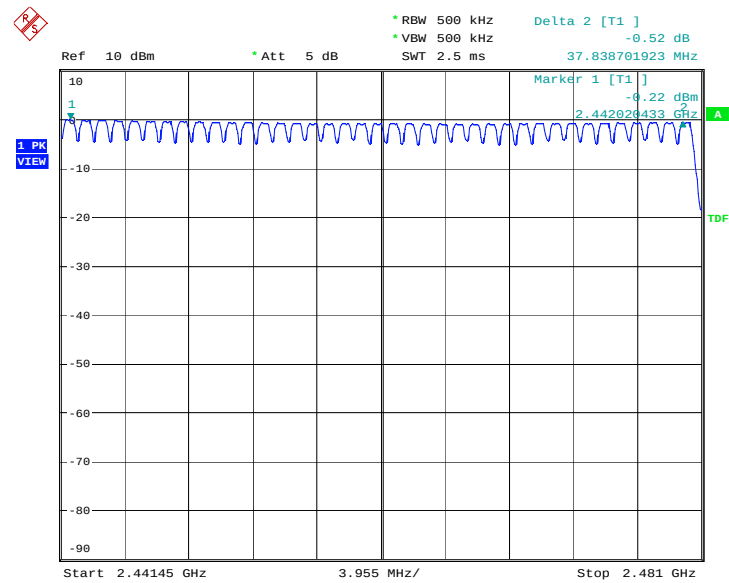
Date: 22.OCT.2009 03:32:27

Fig. 102 Carrier frequency separation measurement: 8DPSK, Channel 39



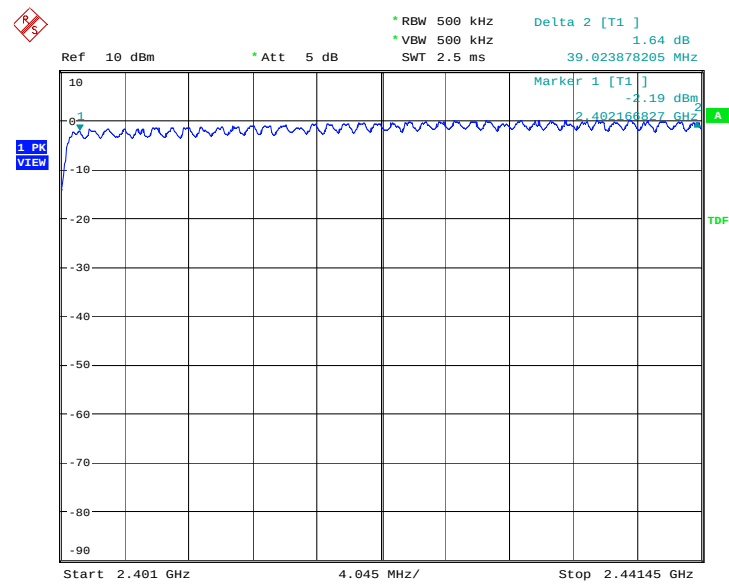
Date: 22.OCT.2009 02:20:37

Fig. 103 Number of hopping frequencies: GFSK, Channel 0 - 39



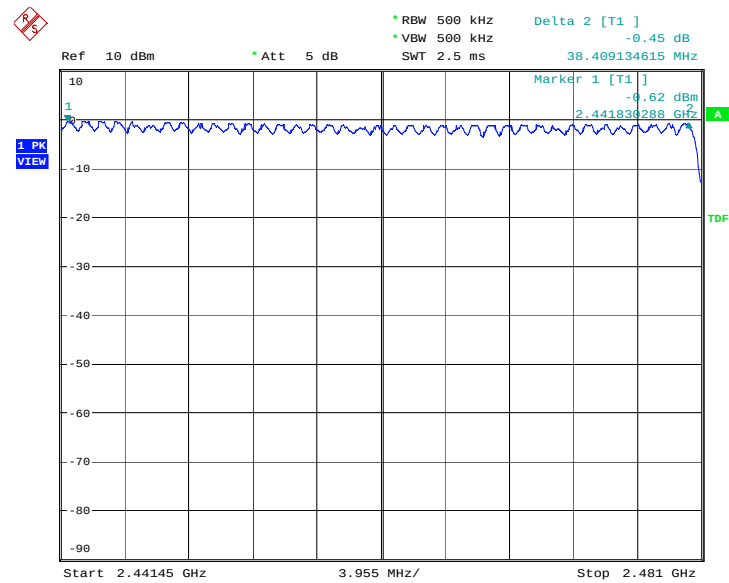
Date: 22.OCT.2009 02:23:09

Fig. 104 Number of hopping frequencies: GFSK, Channel 40 - 78



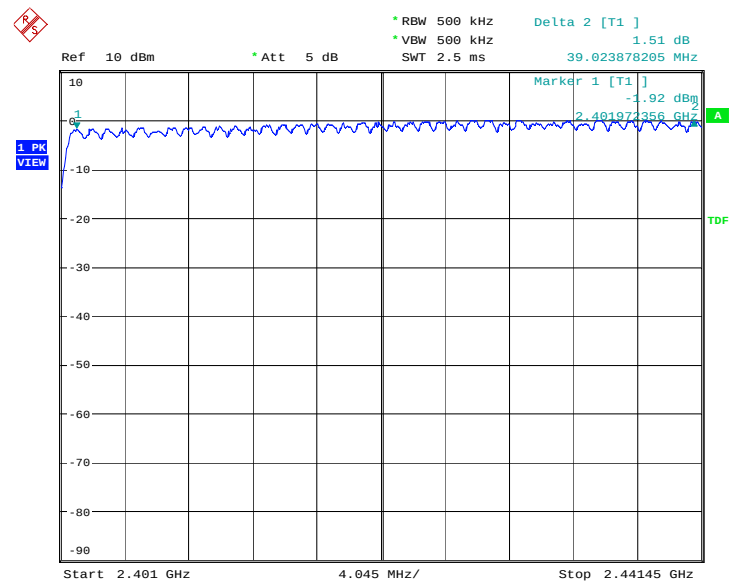
Date: 22.OCT.2009 02:56:16

Fig. 105 Number of hopping frequencies: $\pi/4$ DQPSK, Channel 0 - 39



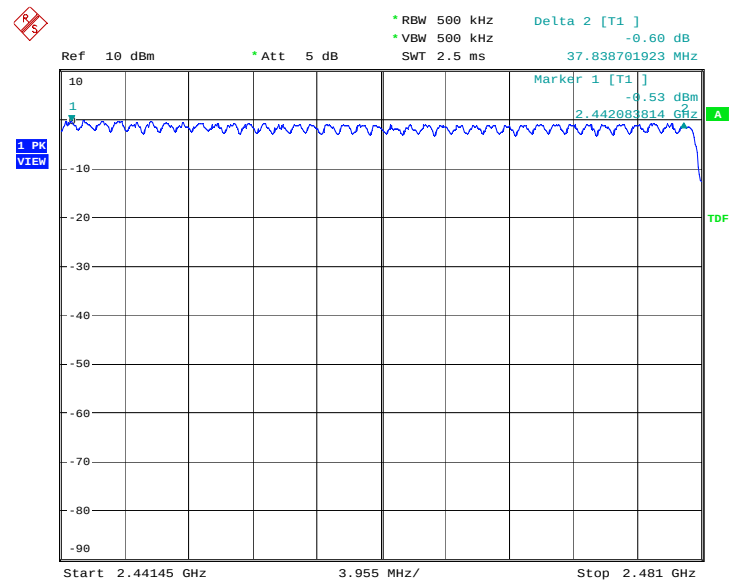
Date: 22.OCT.2009 02:58:48

Fig. 106 Number of hopping frequencies: $\pi/4$ DQPSK, Channel 40 - 78



Date: 22.OCT.2009 03:35:01

Fig. 107 Number of hopping frequencies: 8DPSK, Channel 0 - 39



Date: 22.OCT.2009 03:37:33

Fig. 108 Number of hopping frequencies: 8DPSK, Channel 40 - 78

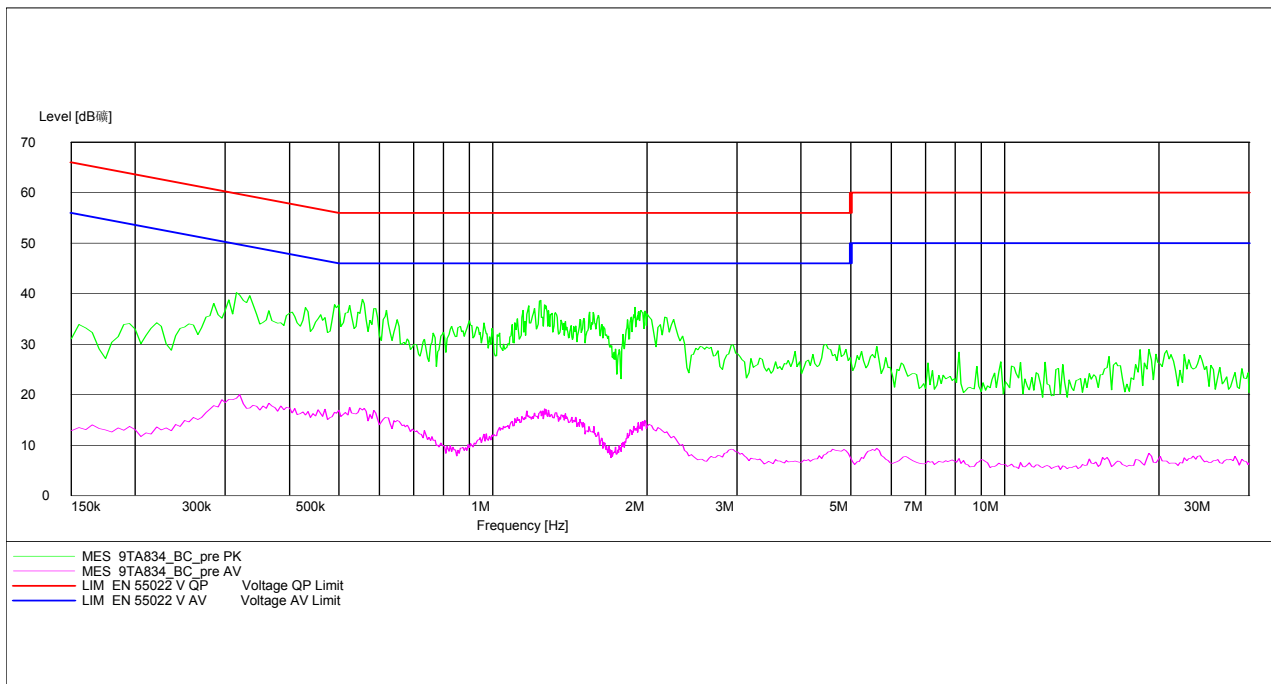


Fig. 109 AC Powerline Conducted Emission with charger

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